LOW-SPEED AERODYNAMIC FORCES AND MOMENTS ACTING ON THE HUMAN BODY

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Prepared for:

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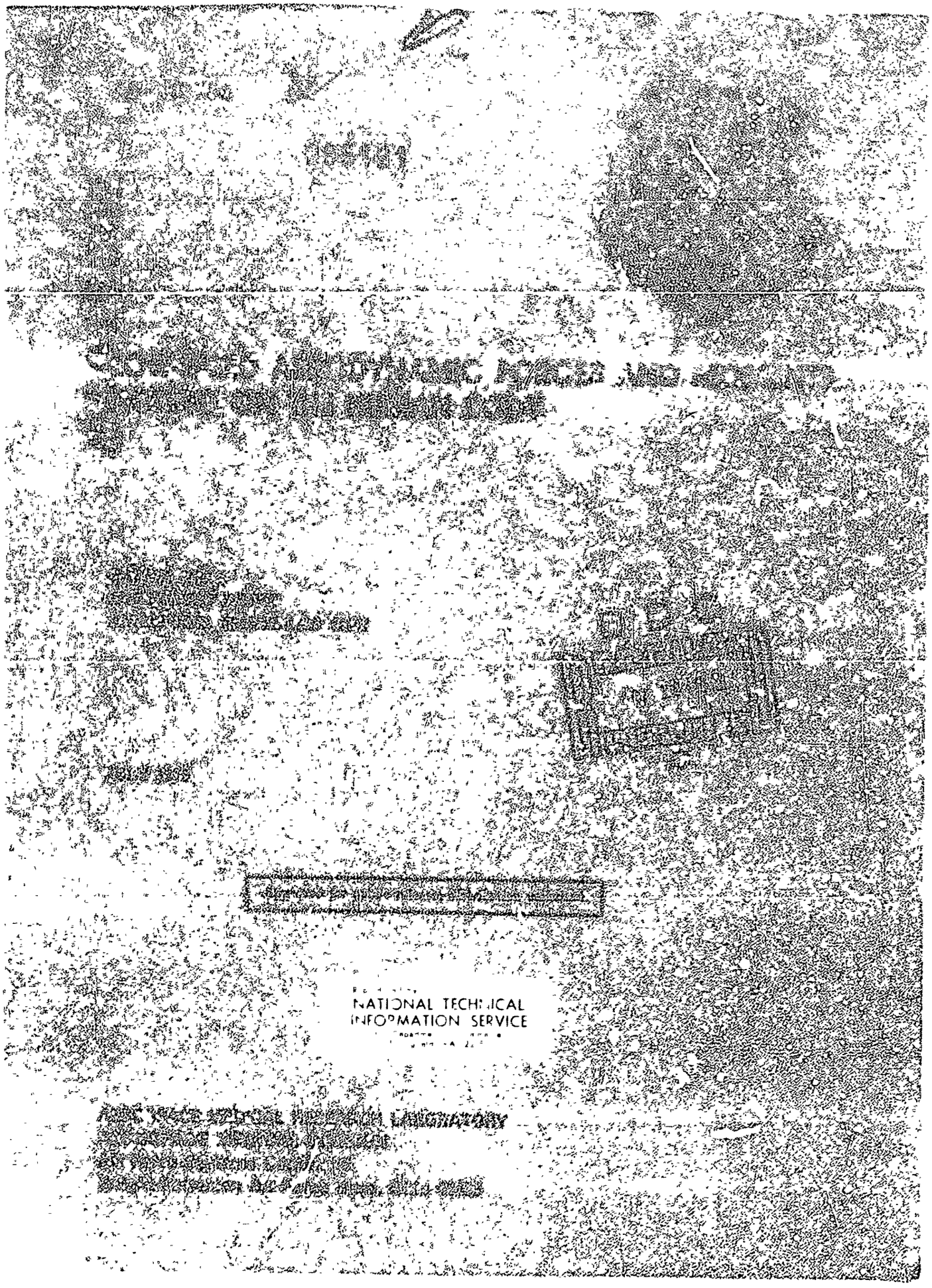

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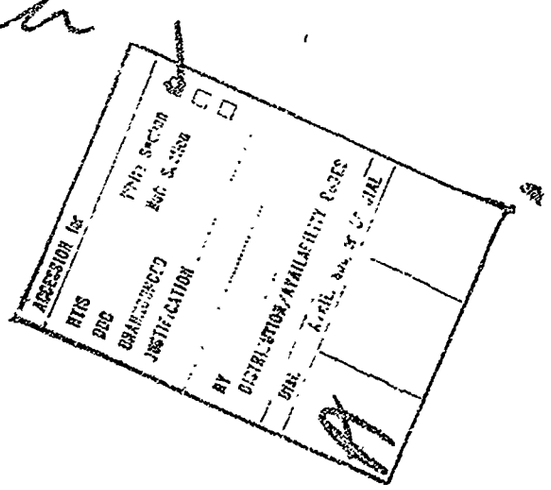

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Information on the aerodynamic forces acting on the human body is sparse, and scattered in various hard-to-find reports. A primary purpose of this report is to collect the available data in one volume, and to present it in the most useful form. The aerodynamic force and moment data originally reported by Schmitt[3] for three body positions is reported, together with additional data which he did not publish. This data is presented in a new

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20. Abstract

form to (hopefully, maximize its usefulness. The drag portion of the Schmitt data is then compared with all other available drag data, represented by wind tunnel tests with volunteer subjects and anthropomorphic dummies, and the instrumented free falls of parachutists and anthropomorphic dummies.

PREFACE

This report was prepared in partial fulfillment of Contract No. F33615-74-C-4015. The research was accomplished by Payne, Inc., 1910 Forest Drive, Annapolis, Maryland 21401. Peter R. Payne was the Principal Investigator.

The Air Force Technical Monitor was James W. Brinkley of the Impact Branch, Biodynamics and Bionics Division of the Aerospace Medical Research Laboratory. The work was performed in support of Project 7231, "Biodynamics of Aerospace Operations," Task 723106, "Impact Exposure Limits and Personnel Protection Criteria."

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SUMMARY

Knowledge of the aerodynamic forces acting on the human body is a basic requirement for many purposes. Surprisingly, the literature on the subject is very sparse, and data are scattered in various hard-to-find reports, and when found, are not always in a readily usable form. A primary purpose of this report is to collect the available data in one volume, and to present it in the most useful form. To do this, we document the aerodynamic force and moment data originally reported by Schmitt[3] for three body positions and present additional data which he did not publish. The raw data is analyzed and presented in a new form to (hopefully) maximize its usefulness.

The drag portion of the data is then compared with all other available drag data, represented by

- Wind tunnel tests with volunteer subjects.
- Wind tunnel tests with anthropomorphic dummies.
- Instrumented free falls of parachutists.
- Instrumented free falls of anthropomorphic dummies.

Most of these drag data are for the subject facing into the flow in a quasi-erect position and for this case, the Schmitt data average appears to be about 25% higher than the other data. For other body attitudes, it generally agrees with the two wind tunnel dummy tests which constitute the only comparative data available.

INTRODUCTION

Knowledge of the aerodynamic forces acting on the human body is a basic requirement for many purposes. Surprisingly, the literature on the subject is very sparse, and data are scattered in various hard-to-find reports, and when found, is not always in a readily usable form. A primary purpose of this report is to collect the available data in one volume, and to present it in the most useful form.

Adult humans are available in only one basic size range. They may be nude, or clothed more or less bulkily. It is foolish, therefore, to spend a great deal of time and effort attempting to measure lengths and frontal areas (which change with the clothing put on) in order to express aerodynamic forces and moments in coefficient form. The user of such data only has to go to a corresponding amount of effort to get back to the original data, which is what he needs; namely

$$\frac{\text{Force}}{\text{Dynamic Pressure}} = \frac{F}{q}$$

and

$$\frac{\text{Moment}}{\text{Dynamic Pressure}} = \frac{M}{q}$$

Yet it would be desirable to cancel out, as much as possible, those variations in the data that are attributable to subject size. If all people were geometrically similar, we could do this by noting that their density ρ_s varies very little, so that their weight (W) and frontal area (A), in terms of a characteristic dimension L, can be expressed as

$$W = k_1 L^3 \qquad A = k_2 L^2$$

$$\therefore \quad A = \left(\frac{k_2}{k_1^{2/3}}\right) W^{2/3} = K W^{2/3} \tag{1}$$

Force data could then be correlated with $W^{2/3}$, and moments with W.

Unfortunately, instead of being geometrically similar, some people are tall and thin, while others are short and fat. They are only affinely similar. The writer has shown[1] that in this case

$$\text{Area} \propto \sqrt{WL}$$

$$\text{Volume} \propto L\sqrt{WL}$$

This leads to the following "coefficients."

$$\underline{\text{Force}} \qquad C_{F_n} = \frac{F_n}{q\sqrt{WL}} = \frac{A_n}{\sqrt{WL}}$$

$$\underline{\text{Moment:}} \qquad C_{M_n} = \frac{M_n}{qL\sqrt{WL}} = \frac{V_n}{L\sqrt{WL}}$$

where $A_n = \frac{F_n}{q}$ (A "force area")

(= $C_F S$ in conventional notation)

$V_n = \frac{M_n}{q}$ (A "moment volume")

(= $LC_M S$ in conventional notation)

If W is in lb, and L in feet, the "coefficients" are not nondimensional, but since we are interested only in the "full size" scale, this is not material.

The percentile relationship between W, L, $\sqrt{WL}$ and $L\sqrt{WL}$, obtained from Reference 2, is plotted in Figure 1. An empirical justification for this approach is presented in Figure 2.

The rest of this report is concerned with presenting the available data in this format.

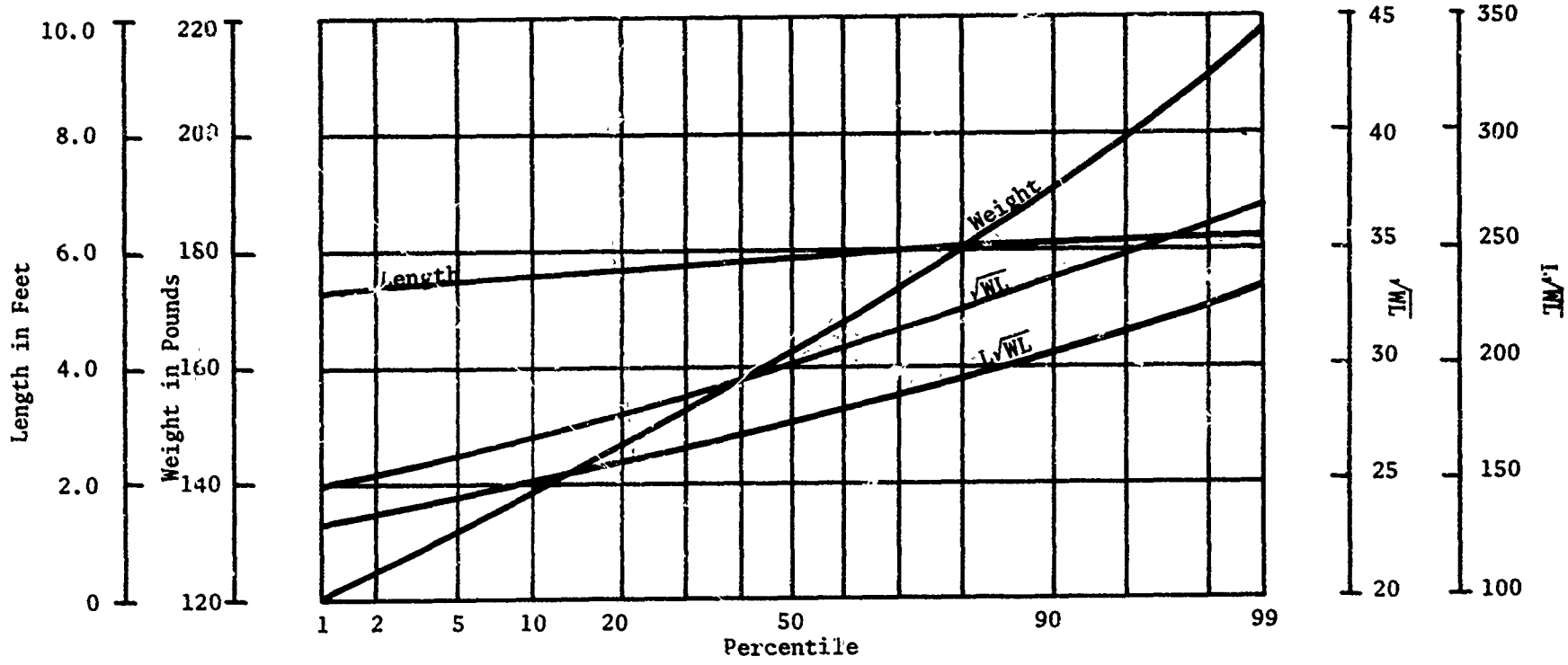


Figure 1. Variations of Height and Weight with Aircrew Population, from Hertzberg.[2]

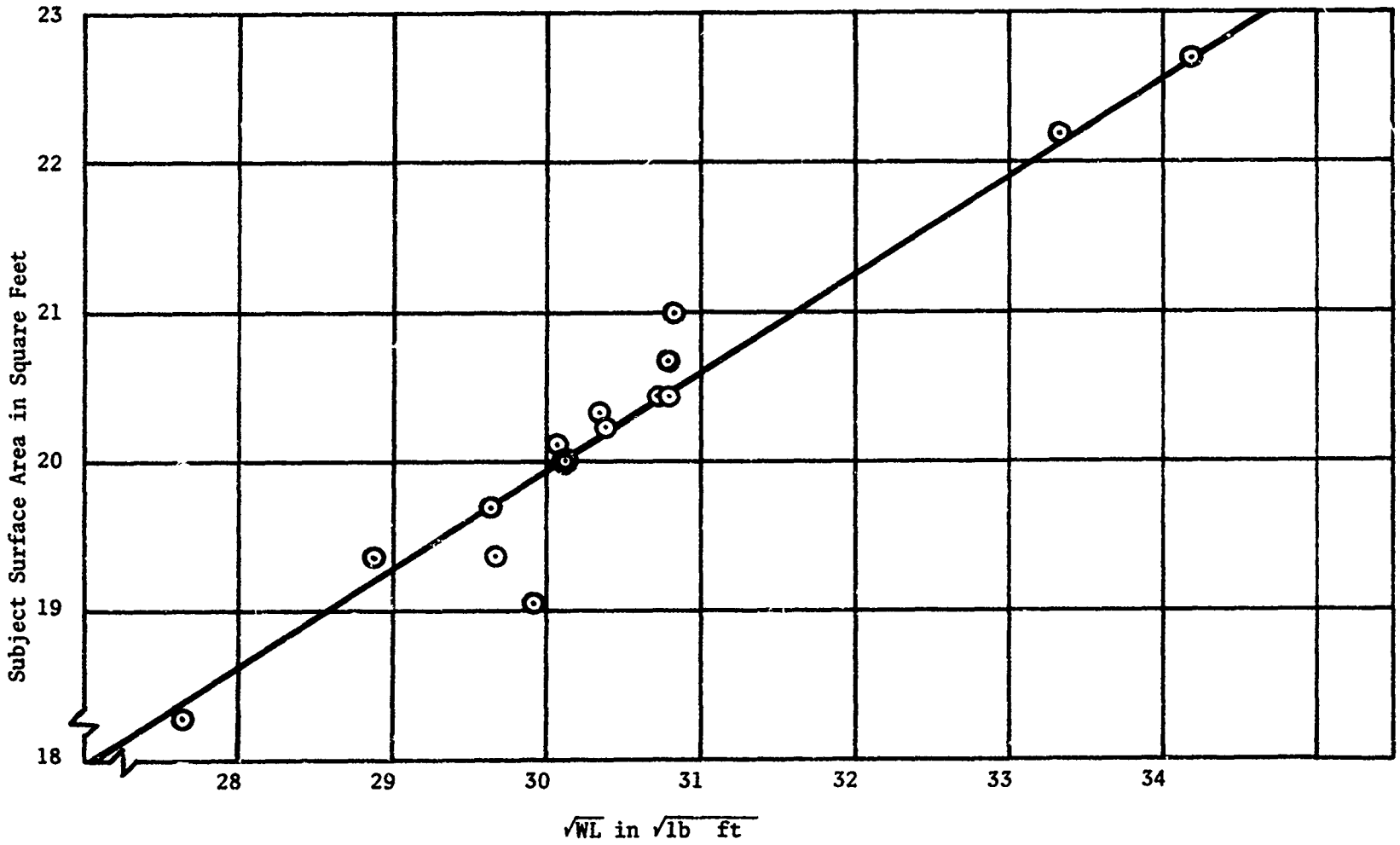


Figure 2. Relationship Between Measured Body Surface Area and $\sqrt{WL}$, Based on Measurements by Schmitt.[3]

THE DATA OF SCHMITT[3]

Schmitt made measurements with volunteer subjects, lightly clothed and semi-nude, in five positions

- Standing
- Sitting
- Supine

} Reproduced in this report

- Two "squat" positions (Not considered here)

Yaw angle was varied from 0 to 180°. All three forces and all three moments were measured. In the present report, all moments are expressed with respect to an arbitrary axis system defined in Figures 3 and 4, in relation to an "average" CG location, determined from four of the 14 subjects* employed. The general equations for transferring the moments to the CG (or any other location, x,y) are as follows; the symbols being defined in Figure 3:

$$M_{CG} = M_{CR} + (x \cos \Psi)\, L - yD$$

$$N_{CG} = N_{CR} + (x \sin \Psi)\, D + (x \cos \Psi)\, Y$$

$$\ell_{CG} = \ell_{CR} - yY - (x \sin \Psi)\, L$$

The specific transfer equations for the three postures and CG positions of Figures 3 and 4 are as follows:

Supine Position

$$M_{CG} = M_{CR} + (0.17 \cos \Psi)\, L - 0.40\, D$$

$$N_{CG} = N_{CR} + (0.17 \sin \Psi)\, D + (0.17 \cos \Psi)\, Y$$

$$\ell_{CG} = \ell_{CR} - 0.40\, Y - (0.17 \sin \Psi)\, L$$

Sitting Position

$$M_{CG} = M_{CR} + (1.03 \cos \Psi)\, L - 0.53\, D$$

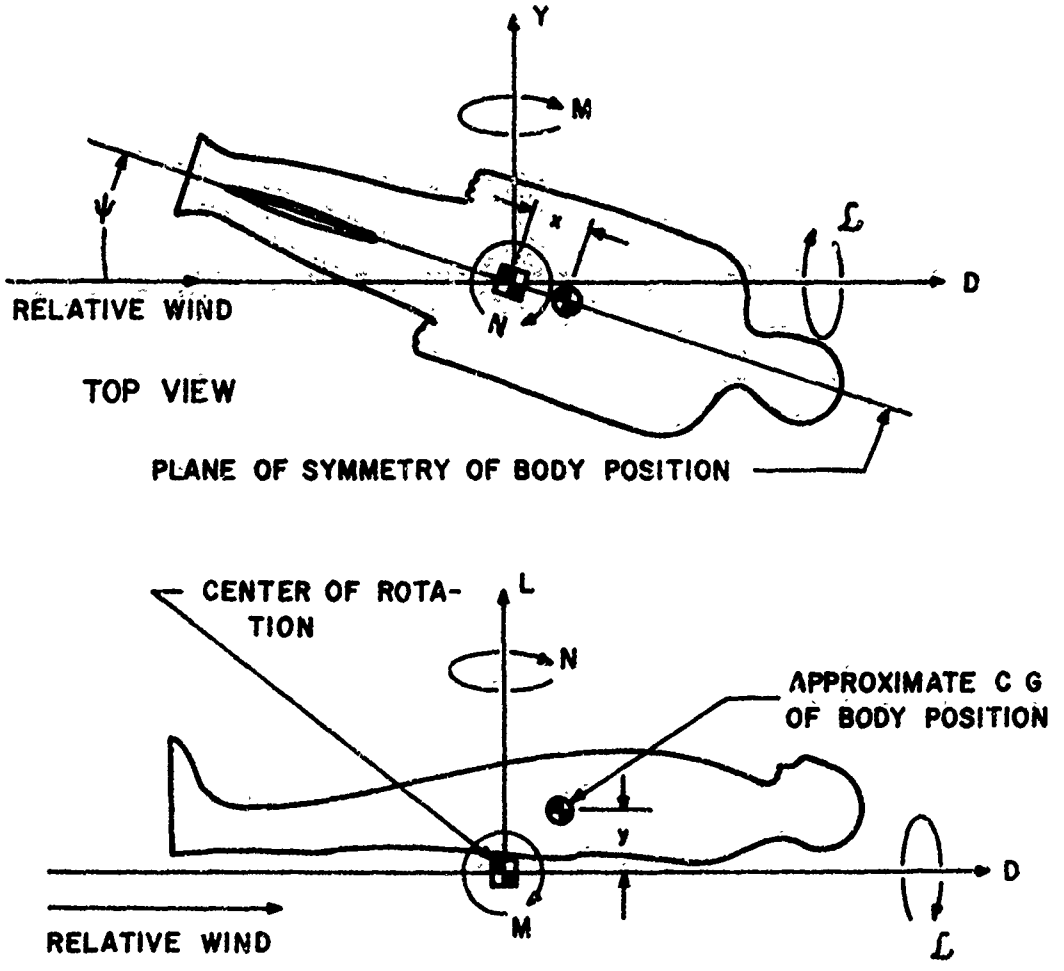
$$N_{CG} = N_{CR} + (1.03 \sin \Psi)\, D + (0.17 \cos \Psi)\, Y$$

$$\ell_{CG} = \ell_{CR} - 0.40\, Y - (0.17 \sin \Psi)\, L$$

* Reference 3 reported wind tunnel data for eight subjects only. Raw data for the additional six subjects were included in the present analysis.

AXES

POSITIVE FORCES AND MOMENTS ARE INDICATED BY ARROWS



Axis	Force	Force Coefficient	Moment	Moment Coefficient
D	D(drag)	$C_{D_{\sqrt{WL}}} = D/(q_o\sqrt{WL})$	L(Rolling)	$C_{\ell_{\sqrt{WL}}} = \ell/(q_o h\sqrt{WL})$
Y	Y(side)	$C_{Y_{\sqrt{WL}}} = Y/(q_o\sqrt{WL})$	M(pitching)	$C_{M_{\sqrt{WL}}} = M/(q_o h\sqrt{WL})$
L	L(lift)	$C_{L_{\sqrt{WL}}} = L/(q_o\sqrt{WL})$	N(yawing)	$C_{N_{\sqrt{WL}}} = N/(q_o h\sqrt{WL})$

Figure 3. Geometry Definition for Schmitt[3] Measurements of Supine Human Body Aerodynamic Forces and Moments.

Standing Position

$$M_{CG} = M_{CR} - (0.03 \cos \Psi)\, L - 0.74\, D$$

$$N_{CG} = N_{CR} - (0.03 \sin \Psi)\, D - (0.03 \cos \Psi)\, Y$$

$$\ell_{CG} = \ell_{CR} - 0.74\, Y + (0.03 \sin \Psi)\, L$$

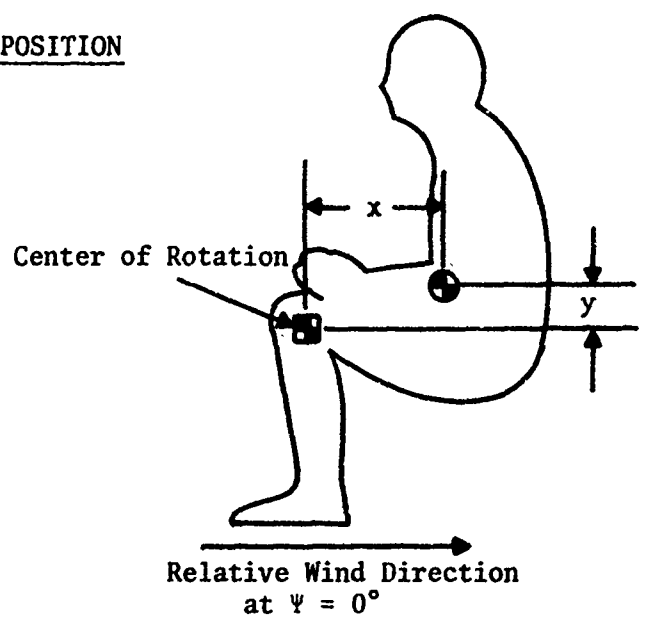
The reference 3 data were presented as coefficients based on

$$\frac{VL}{s} = \frac{\text{Volume x Height}}{\text{Surface Area}}$$

for both forces and moments. This is just as valid as our $\sqrt{WL}$ criterion, but not as easily discoverable. The close proximity of many Reference 3 data points, compounded by the poor quality of available reproductions effectively prevents converting to force area and moment volume data. Accordingly, arrangements were made (through Dr. Harvey R. Chaplin, Head, Aviation and Surface Effects Department, NSRDC) to obtain the original data and computation sheets and this raw data was analyzed, as described in Appendix I, using the $\sqrt{WL}$ parameter to correct for size. The results are summarized in Figures 5 - 10 (means) and Figures 11 - 16 (standard deviations).

Lift and drag force data are expected to be the most accurate. There was some sideways shift of the subjects, as they were yawed, and this degraded the side force and moment readings, due to nonreproducibility of tares. It is interesting to note that forces were generally increased when light clothing is worn. Figure 17 gives the mean drag variation due to clothing, as a function of yaw angle. No trend with yaw angle is discernible for sitting and standing, but that the clothing drag increase in the prone position is a minimum when the subject is "end on" to the flow.

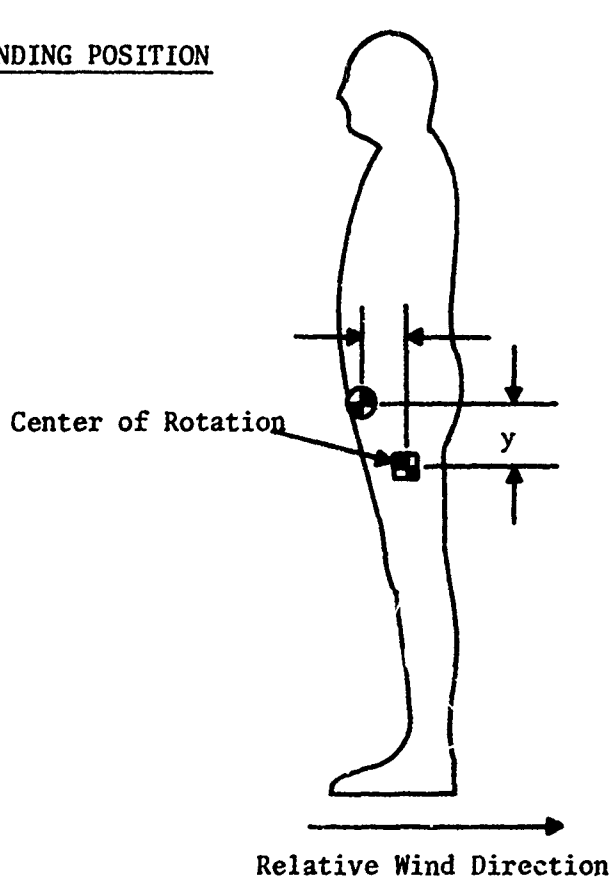
SITTING POSITION



x_{CG} = 1.03 ft

y_{CG} = 0.53 ft

STANDING POSITION



x_{CG} = 0.03 ft

y_{CG} = 0.74 ft

Figure 4. Definition of Schmitt's Sitting and Standing Positions

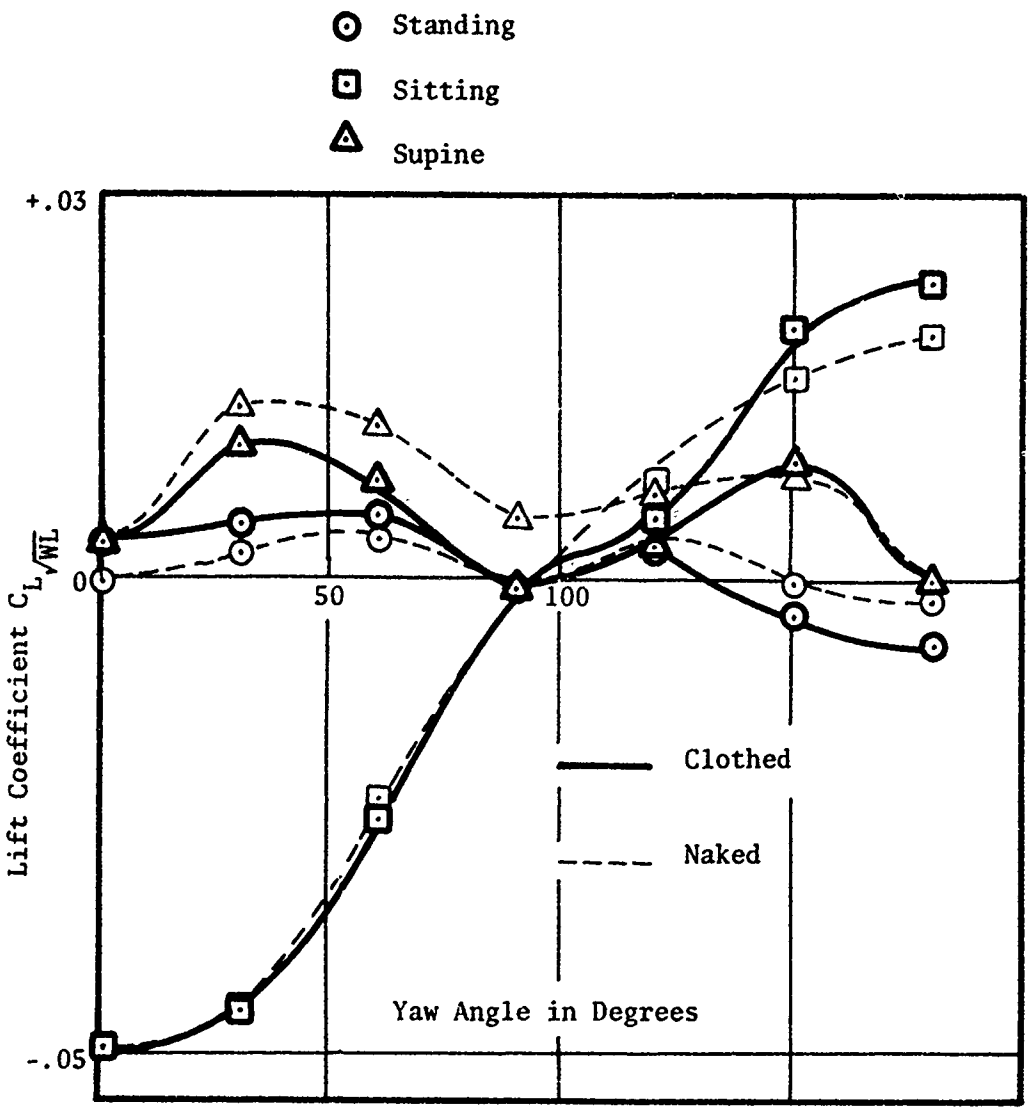


Figure 5. Mean Lift of Fourteen Clothed and Naked Subjects as a Function of Yaw Angle. $C_{L_{\sqrt{WL}}} = L/(q_o\sqrt{WL})$ where W = Subject Weight and L = Subject Height.

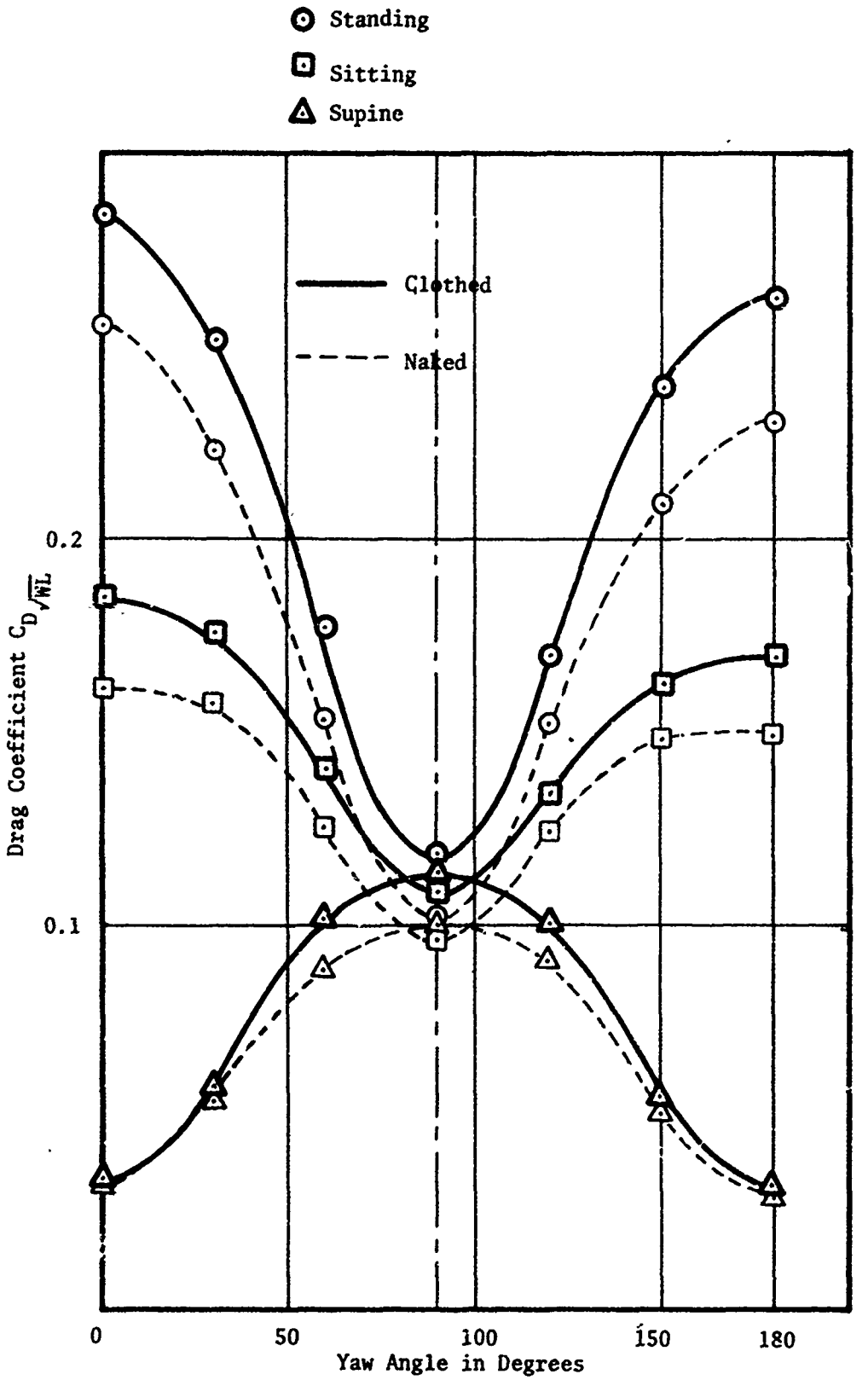


Figure 6. Mean Drag of Fourteen Clothed and Naked Subjects as a Function of Yaw Angle. $C_{D_{\sqrt{WL}}} = D/(q_o\sqrt{WL}$ where W = Subject Weight and L = Subject Height.

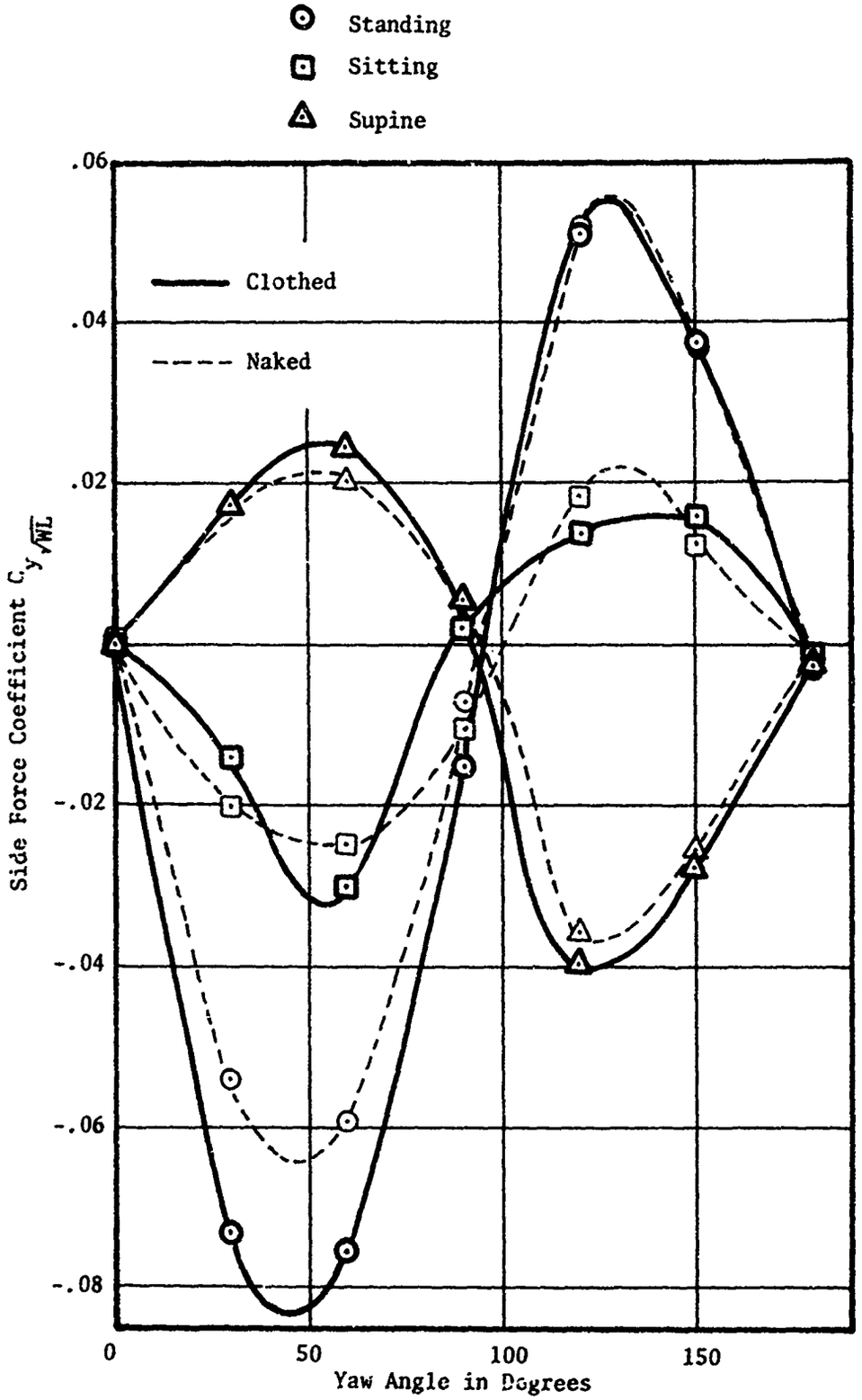


Figure 7. Mean Side Force of Fourteen Clothed and Naked Subjects as a Function of Yaw Angle. $C_{y_{\sqrt{WL}}} = Y/q_o\sqrt{WL}$

Where W = Subject Weight and L = Subject Height

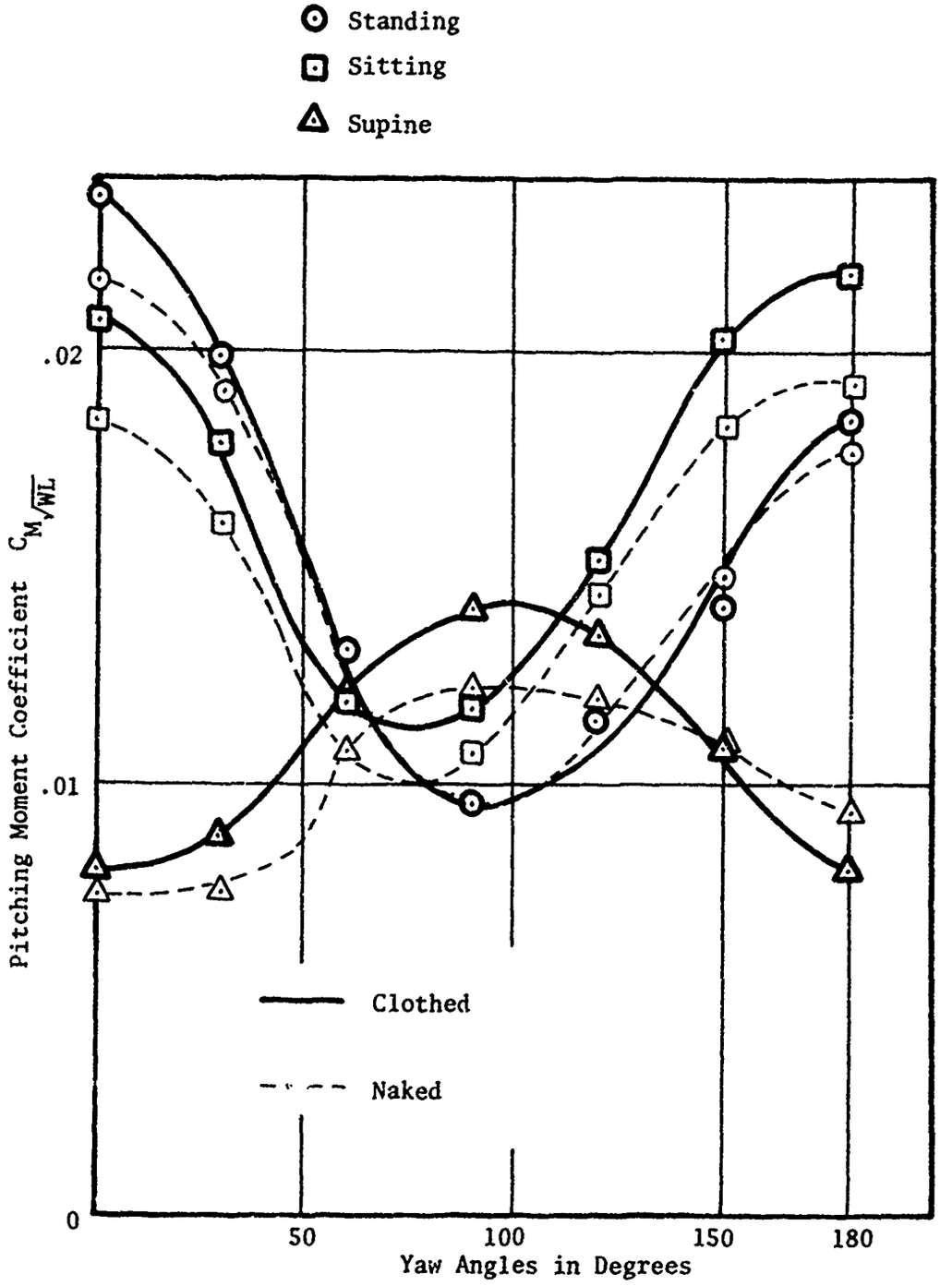


Figure 8. Mean Pitching Moment of Fourteen Clothed and Naked Subjects as a Function of Yaw Angle. $C_{M_{\sqrt{WL}}} = M/(q_o L\sqrt{WL})$ where W = Subject Weight and L = Subject Height.

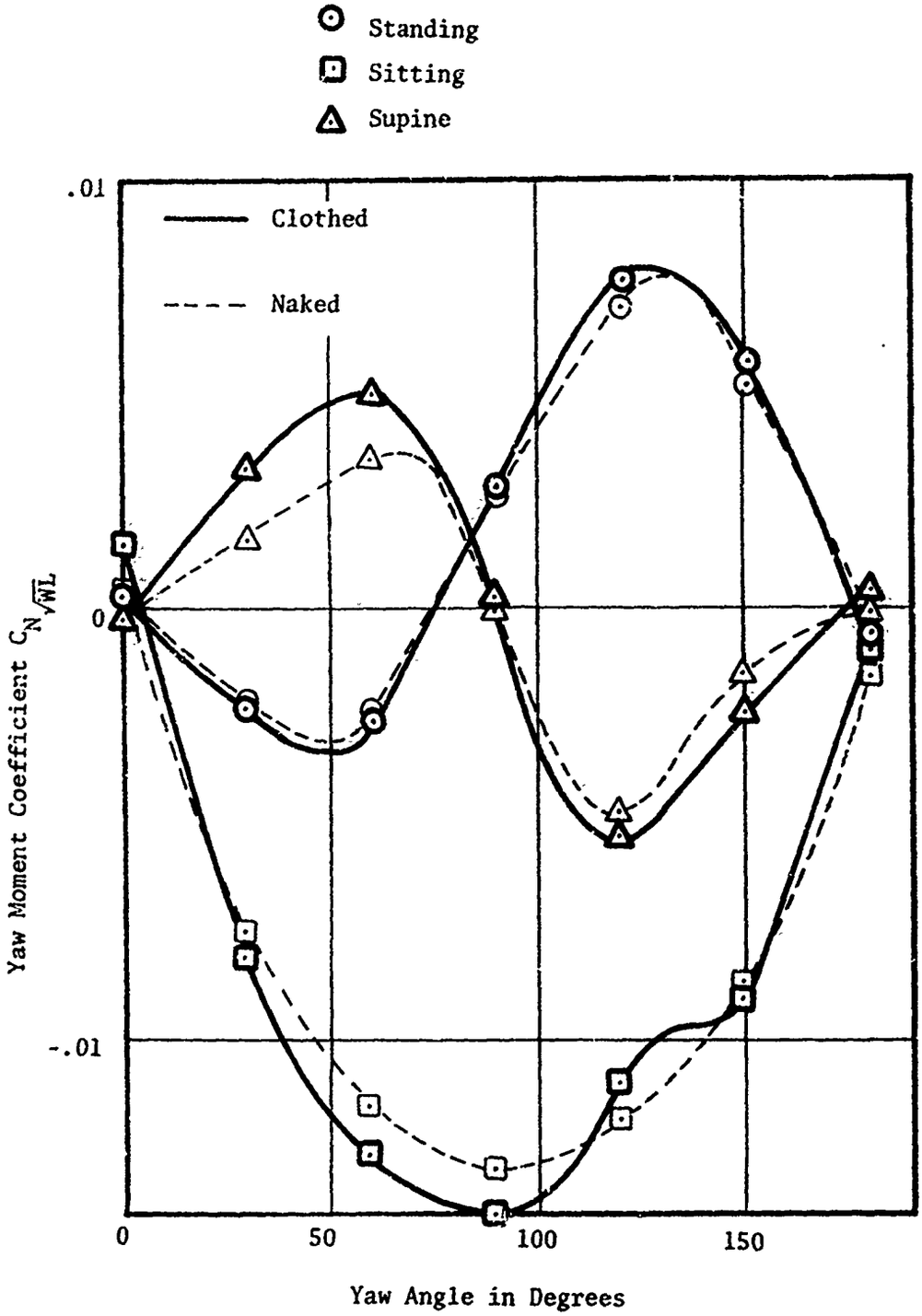


Figure 9. Mean Yawing Moment of Fourteen Clothed and Naked Subjects as a Function of Yaw Angle.
$C_{N\sqrt{WL}} = N/q_o L\sqrt{WL}$ where W = Subject Weight and
L = Subject Height

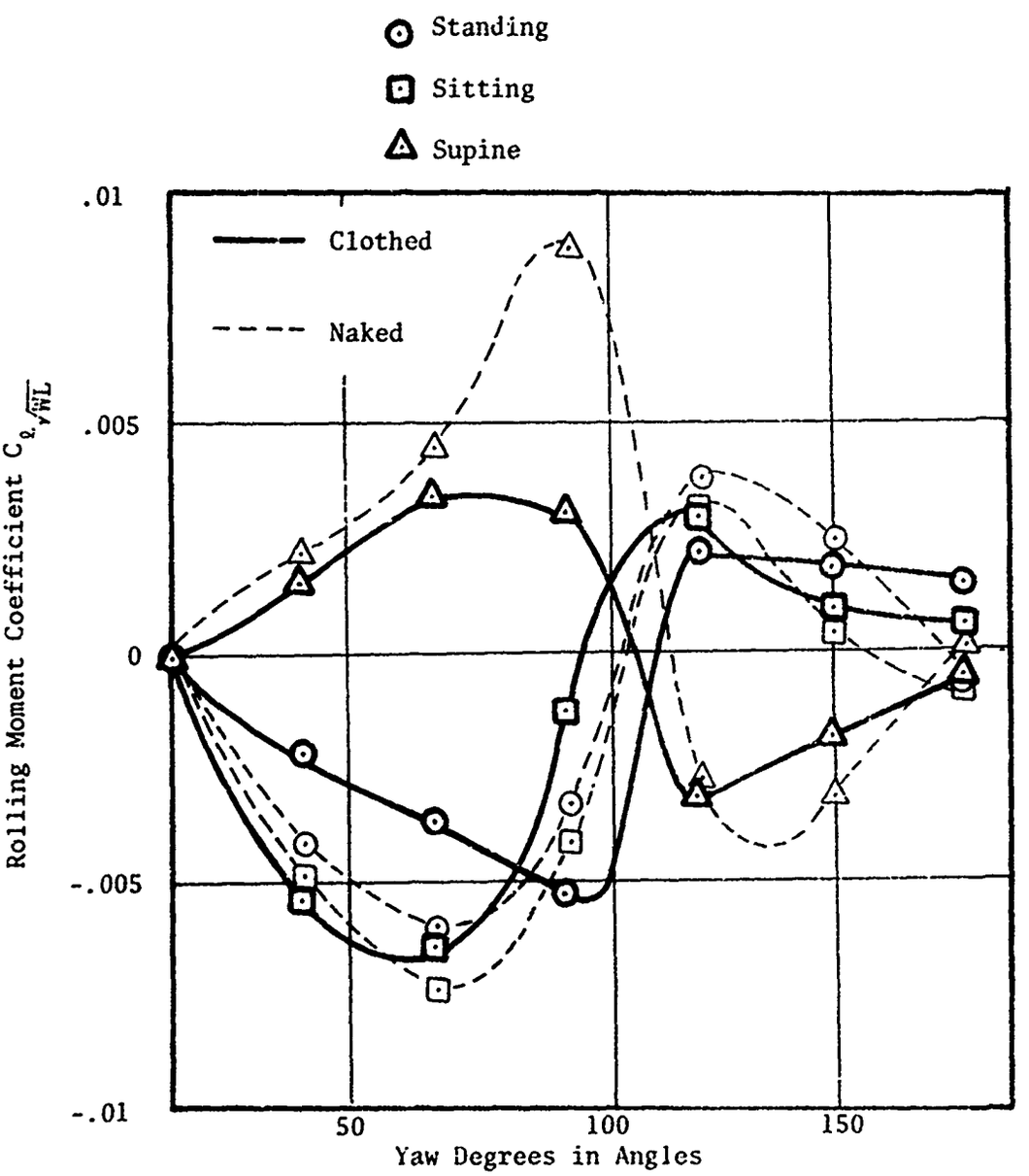


Figure 10. Mean Rolling Moment of Fourteen Clothed and Naked Subjects as a Function of Yaw Angle.
$C_{\ell_{\sqrt{WL}}} = \ell/(q_o L\sqrt{WL})$ where W = Subject Weight and L = Subject Height.

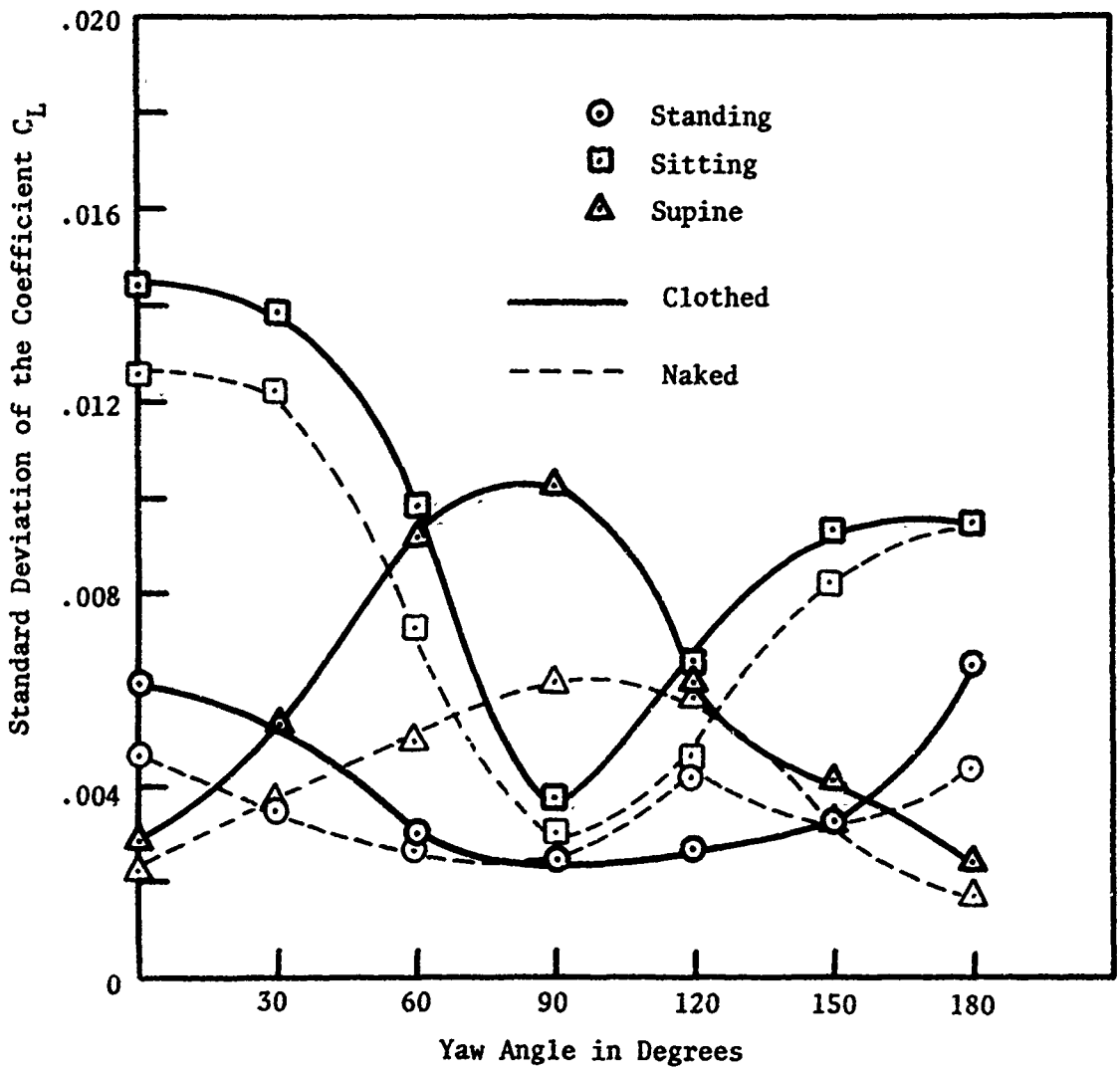


Figure 11. Standard Deviation as a Function of Yaw Angle for C_L Clothed and Nude Values.

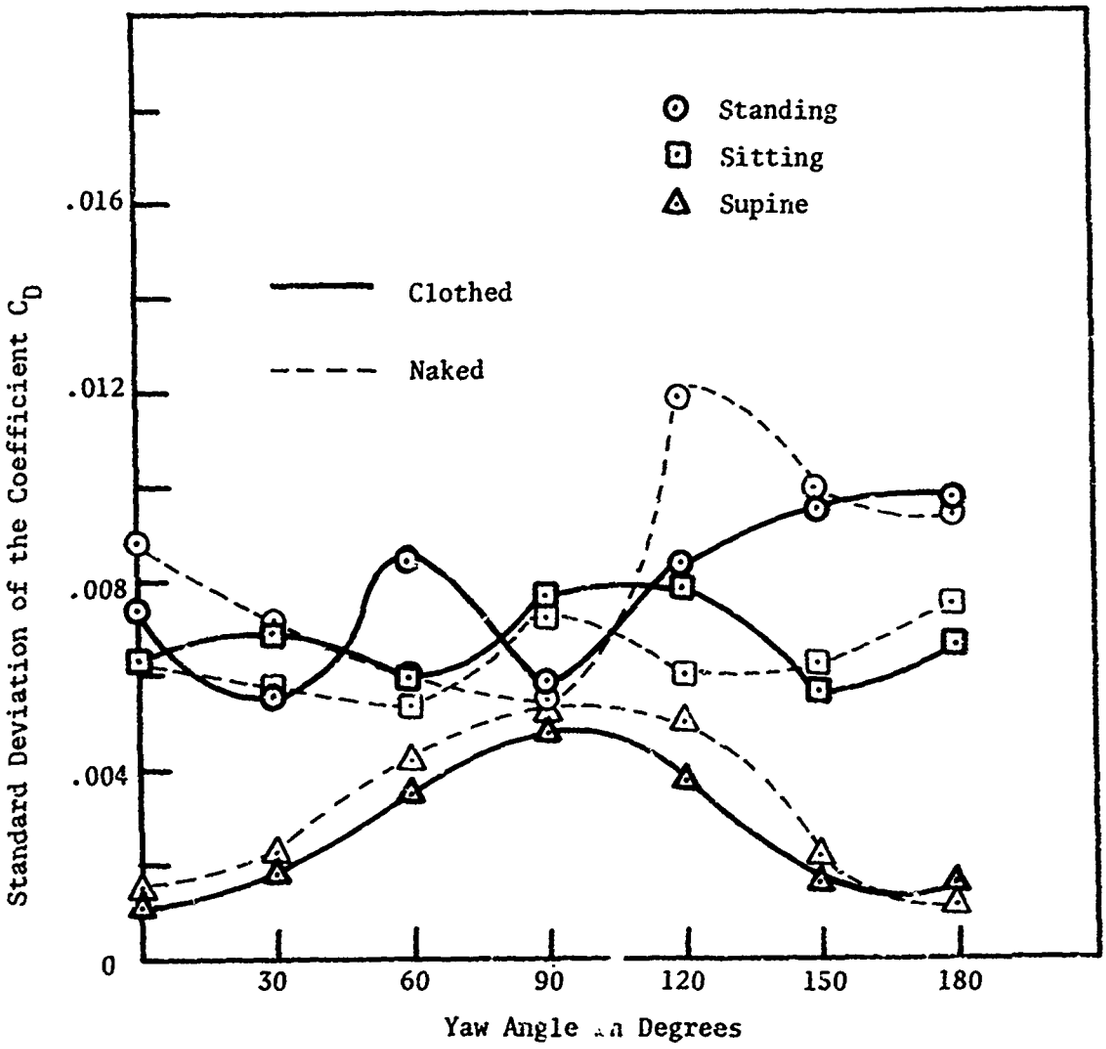


Figure 12. Standard Deviation as a Function of Yaw Angle for C_D Clothed and Naked Values.

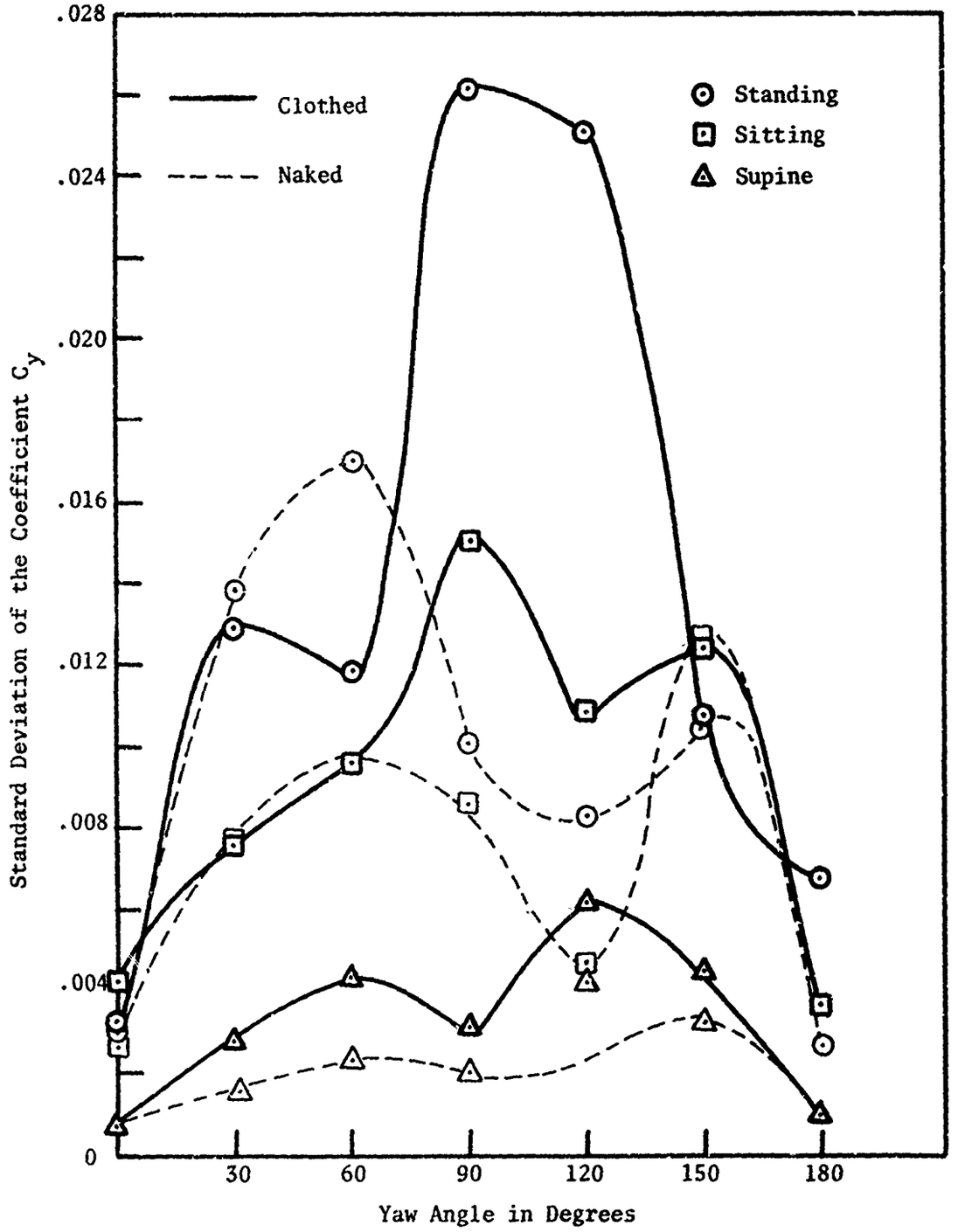


Figure 13. Standard Deviation as a Function of Yaw Angle for the C_y (Side Force) Clothed and Naked Values.

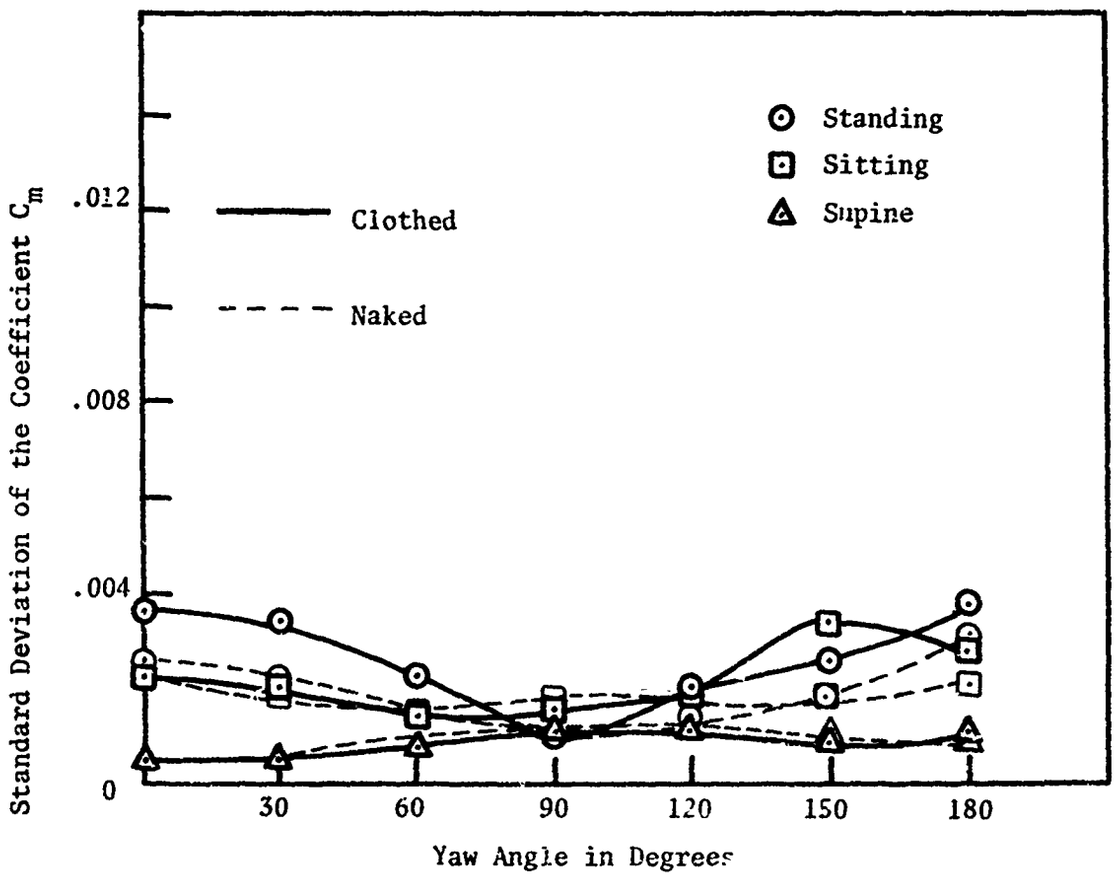


Figure 14. Standard Deviation as a Function of Yaw Angle for C_M (Pitching Moment Coefficient) Clothed and Naked Values.

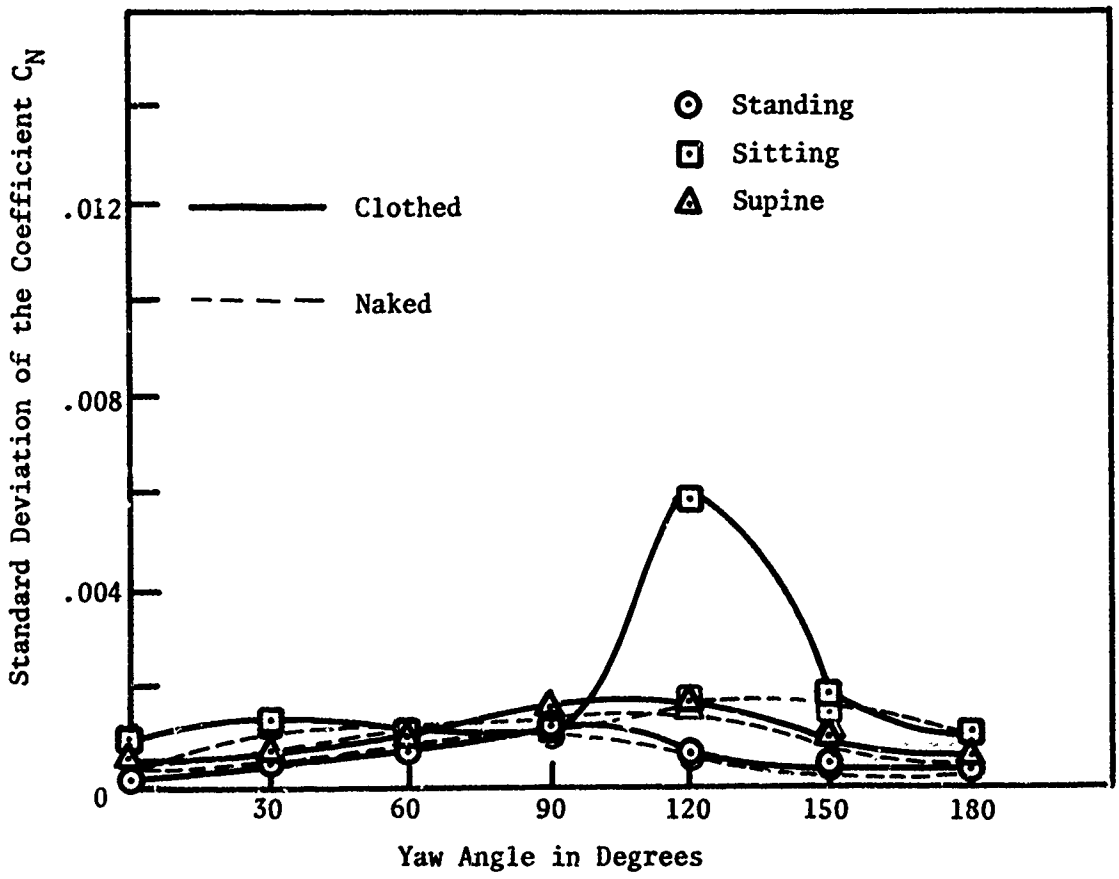


Figure 15. Standard Deviation as a Function of Yaw Angle for C_N (Yawing Moment Coefficient) Clothed and Naked Values.

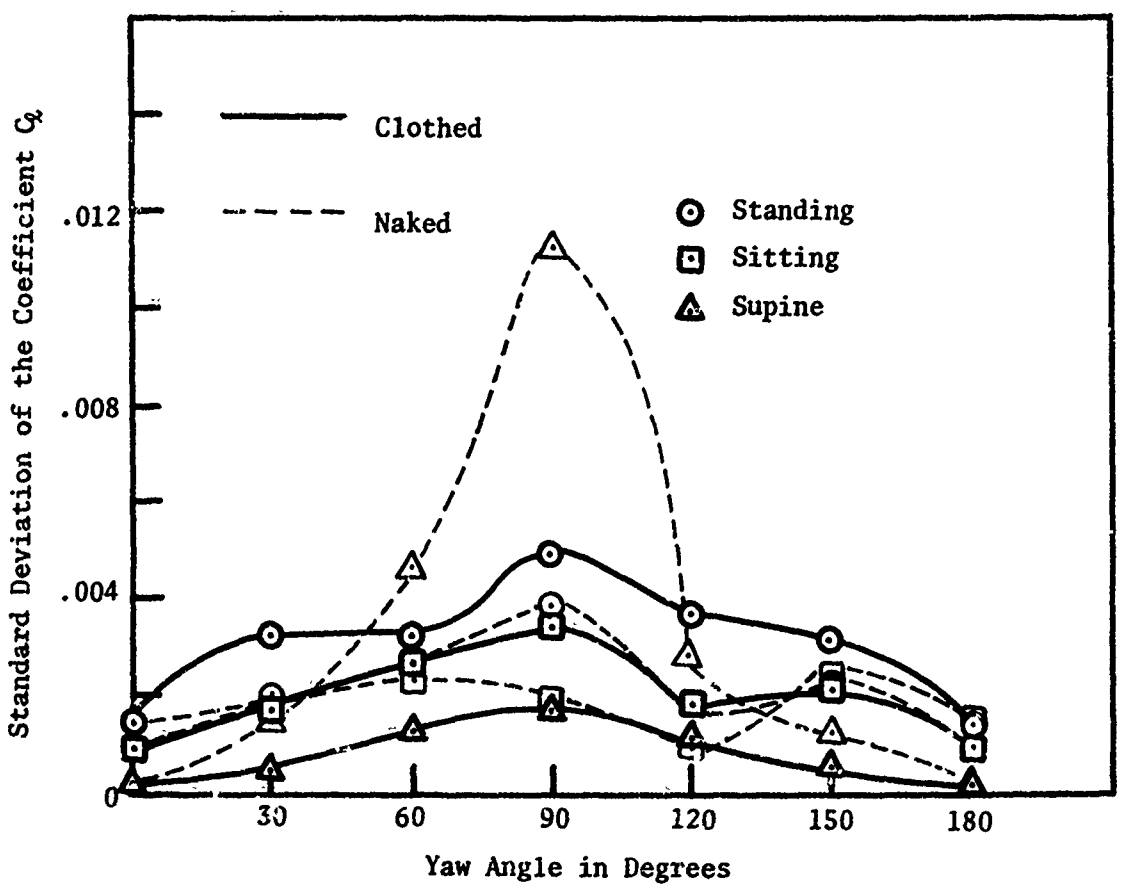


Figure 16. Standard Deviation as a Function of Yaw Angle for C_ℓ (Rolling Moment Coefficient) Clothed and Naked Values.

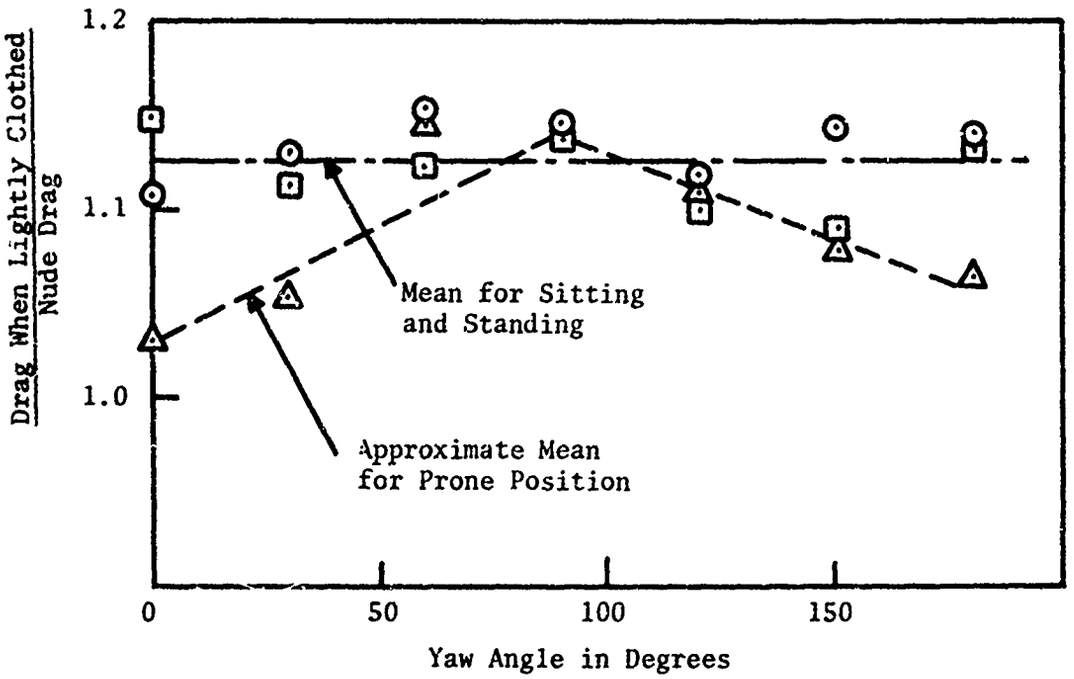


Figure 17. Effect of Light Clothing (Shirt and Slacks) on Drag.

OTHER SOURCES OF DATA

The only other direct measurements of the forces on a live subject are due to Payne[1], and some (as yet) unpublished whole body and segment drag by Hawker and Euler. Additionally, there is some free-fall parachutist data in the literature, some free fall data obtained with anthropometric dummies, and a series of wind tunnel tests of a dummy by Rickards and Collins.[4] Except for the latter, all data relates to drag force only, usually with the subject more or less normal to the flow - the "standing" position.

These drag data are summarized in Figure 18.

The published[1] and unpublished Payne Inc. data was obtained with subjects suspended in a wind tunnel. The Puddycomb[5] free-fall data is also for live human subjects. We have so far failed to locate a copy of this reference, but his results are summarized by Haak and Thompson[6] for two stable positions - flat and stable delta - with the data for both lumped together. As Figure 18 shows, the Puddycomb data is in fair agreement with the Payne data, although somewhat lower than the Schmitt averages. (To compute $\sqrt{WL}$, it was assumed, after Haak and Thompson, that the parachutists equipment weight was 50 lb)

The dummy free-fall data of Cobb and Waters[7] presents some difficulties, because in most of their tests, the dummy was spinning, and the authors indicate that the drag area varied with spin rate. Yet a plot of their average drag area against maximum rotation rate (Figure 19) does not substantiate this relationship. In fact, the highest spin rate (Drop #40) corresponds to the lowest average drag area.

Some light can be thrown on this disagreement by calculating the drag of a rotating rod, using the geometry of Figure 20 below.

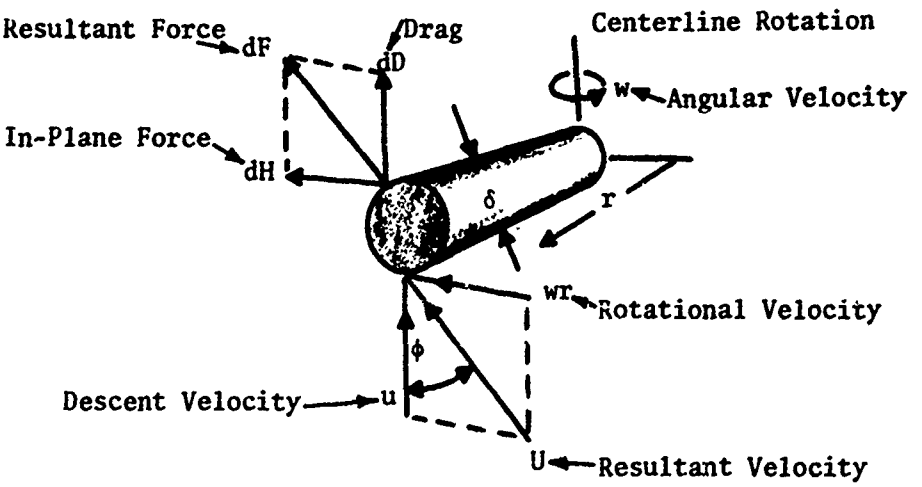


Figure 20. Elemental Forces on a Falling, Spinning Rod

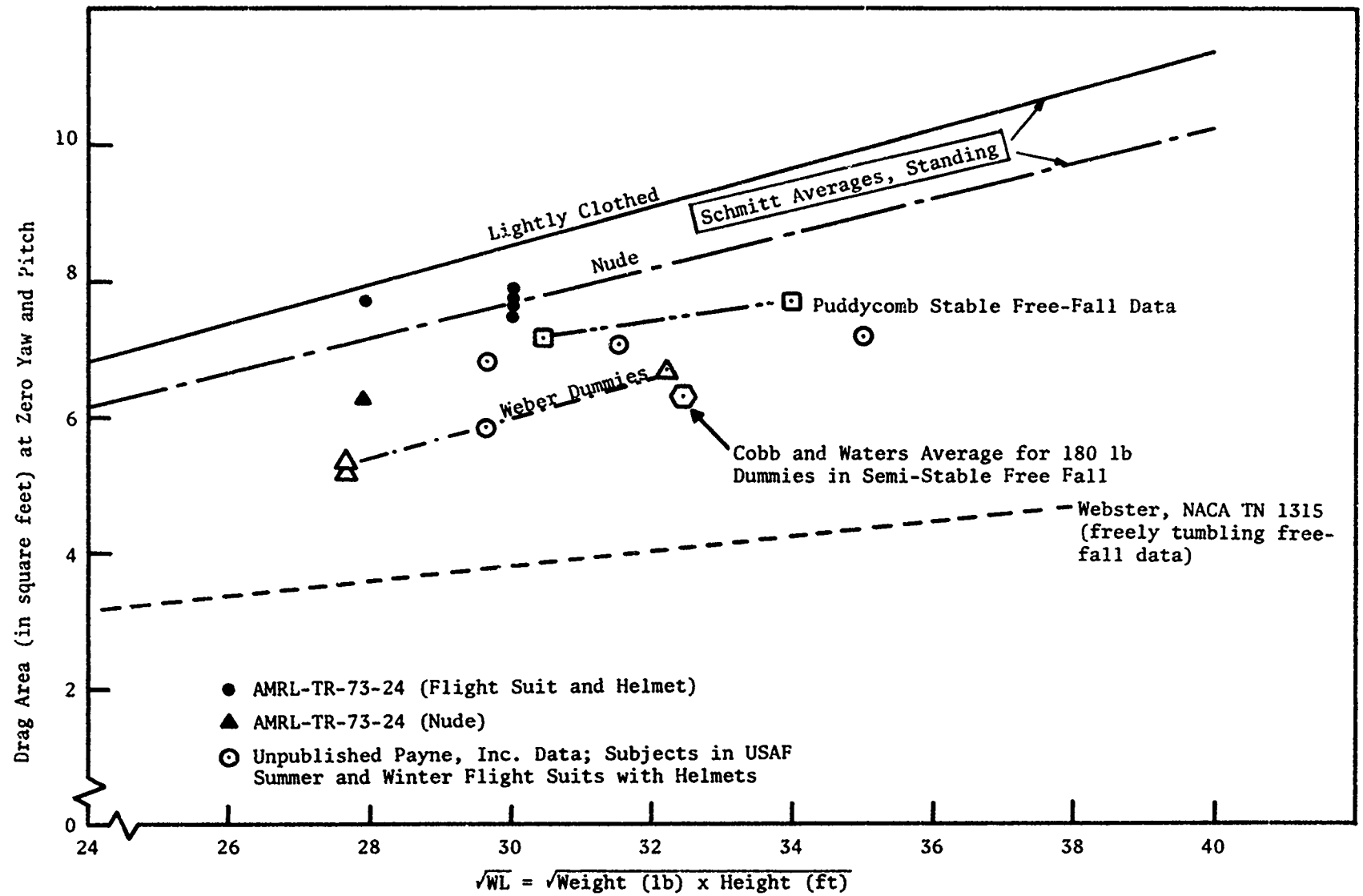


Figure 18. A Summary of Available Drag Data for the Human Form in an Erect Position, Normal to the Flow.

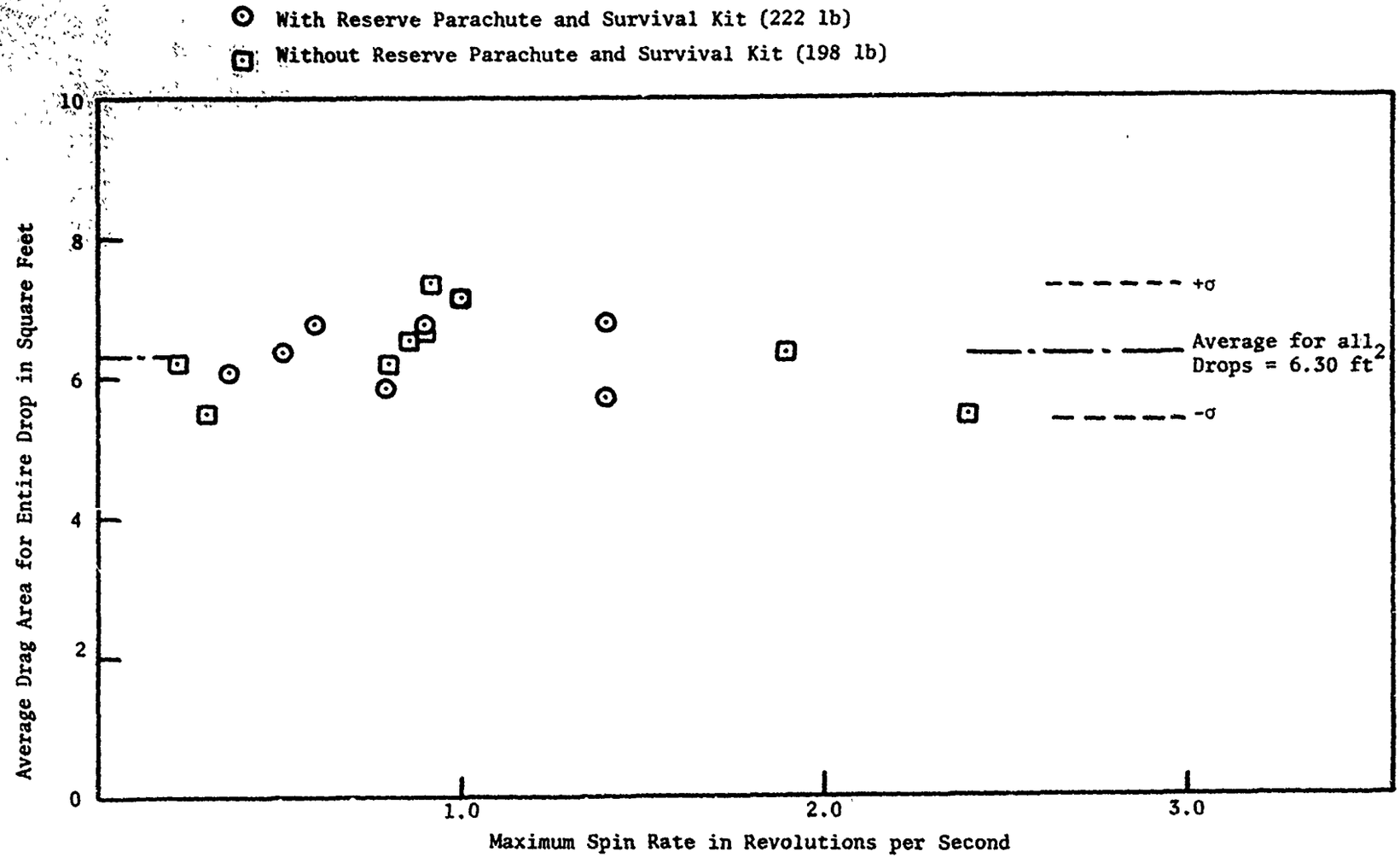


Figure 19. Average Drag Area for 180 lb. Dummies Dropped from Aircraft, as a Function of Maximum Spin Rate (From Cobb and Waters[4]).

The resultant velocity seen by an elemental radial slice dr of the rod is

$$U = \sqrt{u^2 + w^2 r^2}$$

Thus

$$\frac{dF}{dr} = \delta C_D \frac{1}{2} \rho U^2$$

The force opposing the descent is

$$\frac{dD}{dr} = \frac{dF}{dr} \cos \phi = \frac{dF}{dr} \frac{u}{U}$$

$$= \delta C_D \frac{1}{2} \rho u \sqrt{u^2 + w^2 r^2}$$

Thus

$$D = \delta C_D \frac{1}{2} \rho uw \int_0^R \sqrt{(u/w)^2 + r^2}\ dr$$

$$= \delta C_D \frac{1}{4} \rho uw \left\{ r \sqrt{(u/w)^2 + r^2} + (u/w)^2 \log\left[r + \sqrt{(u/w)^2 + r^2} \right] \right\}_0^R$$

$$= \delta C_D \frac{1}{4} \rho uw \left\{ R \sqrt{(u/w)^2 + R^2} + (u/w)^2 \log\left[\frac{R + \sqrt{(u/w)^2 + R^2}}{u/w} \right] \right\}$$

Let $\lambda = wR/u$

Then

$$D = \delta C_D \frac{1}{4} \rho (u^3/w) \left[\lambda \sqrt{1 + \lambda^2} + \log(\lambda + \sqrt{1 + \lambda^2}) \right]$$

$$= \frac{1}{4} C_D \rho u^2 \delta R \left[\sqrt{1 + \lambda^2} + \frac{1}{\lambda} \log(\lambda + \sqrt{1 + \lambda^2}) \right]$$

In the limit $\lambda \to 0$, the bracket tends to 2.0, to give the conventional result for a non-spinning rod. The equation is plotted as a ratio of this non-spinning value in Figure 21, and it can be seen that in the range of spin rates observed with the dummy drops, we would expect no measurable drag increase due to spin. We conclude that the deduced drag area of a dummy in a flat, stable spin should be comparable with the drag of a standing dummy facing the airflow in a wind tunnel.

The average Cobb and Waters value of $C_D S = 6.3$ (from Figure 19) is thus plotted in Figure 18, and is seen to be in fair agreement; a little low relative to the other data, and only 68% of the Schmitt average.

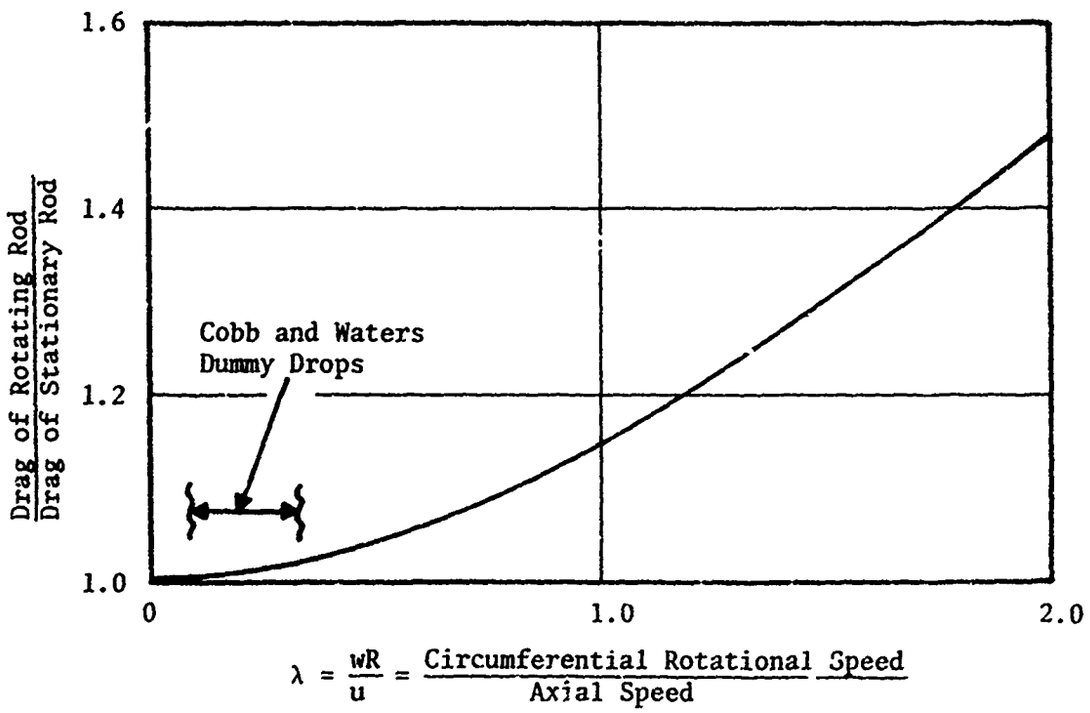


Figure 21. The Effect of Rotational Speed on the Axial Drag of a Rotating Rod.

The Webster[8] data in Figure 18 is obtained from his "variation of K with jumper weight," where

$$K \ (= u\sqrt{\rho}) \ = \ \sqrt{2W/C_D S}$$

Since his value of K is based on measurements with freely tumbling subjects, it is not surprising that it yields values of $C_D S$ much lower than for the rest of the data in Figure 18. The data was presented by assuming that the jumpers had 30 lb of equipment; their height was computed from Hertzberg's[2] data, assuming a weight of (W - 30) lb.

In calculating drag during free fall, all investigators assume that, in the equation of motion

$$\frac{W}{g}\frac{d^2h}{dt^2} \ = \ - W + (C_D S)\ \frac{1}{2}\rho\left(\frac{dh}{dt}\right)^2$$

the value of the density ρ can be treated as constant. In fact, ρ is a function of h and this innocuous-looking equation is more complex than it appears to be at first sight. As a check on this effect, the equation was programmed on the computer, taking the density variation as

$$\rho \ = \ 23.78 \times 10^{-4}\ (1 - 6.88h \times 10^{-6})^{4.256}$$

An object weighing 200 lb, with $C_D S = 7.0$ ft^2, was then "dropped" at 30,000 ft, and its motion calculated. Then, using the known density at each attitude, $C_D S$ was calculated from the equation

$$C_D S \ = \ \frac{\text{Weight}}{\frac{1}{2}\rho\left(\frac{dh}{dt}\right)^2}$$

As can be seen from Figure 22, this calculation underestimates the actual drag by a maximum of 2.9%. This error is small enough to be neglected in the present comparison of data.*

The wind tunnel dummy drag data of Rickards and Collins[4] is also plotted in Figure 18, and is in reasonable agreement with the other data - perhaps a little on the low side - but again, substantially lower than the Schmitt averages. This may be due to the fact that their dummies' hands were clasped in front, as if holding a D-ring. Figures 23 and 24 give some weight to this supposition, since the dummy drag is shown to be <u>higher</u> than the Schmitt averages, except when facing the flow. From Reference 1, a typical wrist drag area is 1.0 ft^2, and this would explain at least half of the discrepancy. During the same tests, a drag area increase of nearly 2.5 ft^2 was experienced when subject #2,

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* This density variation effect would be substantially greater at high altitudes, or with lower drag or high density bodies; bombs, for example.

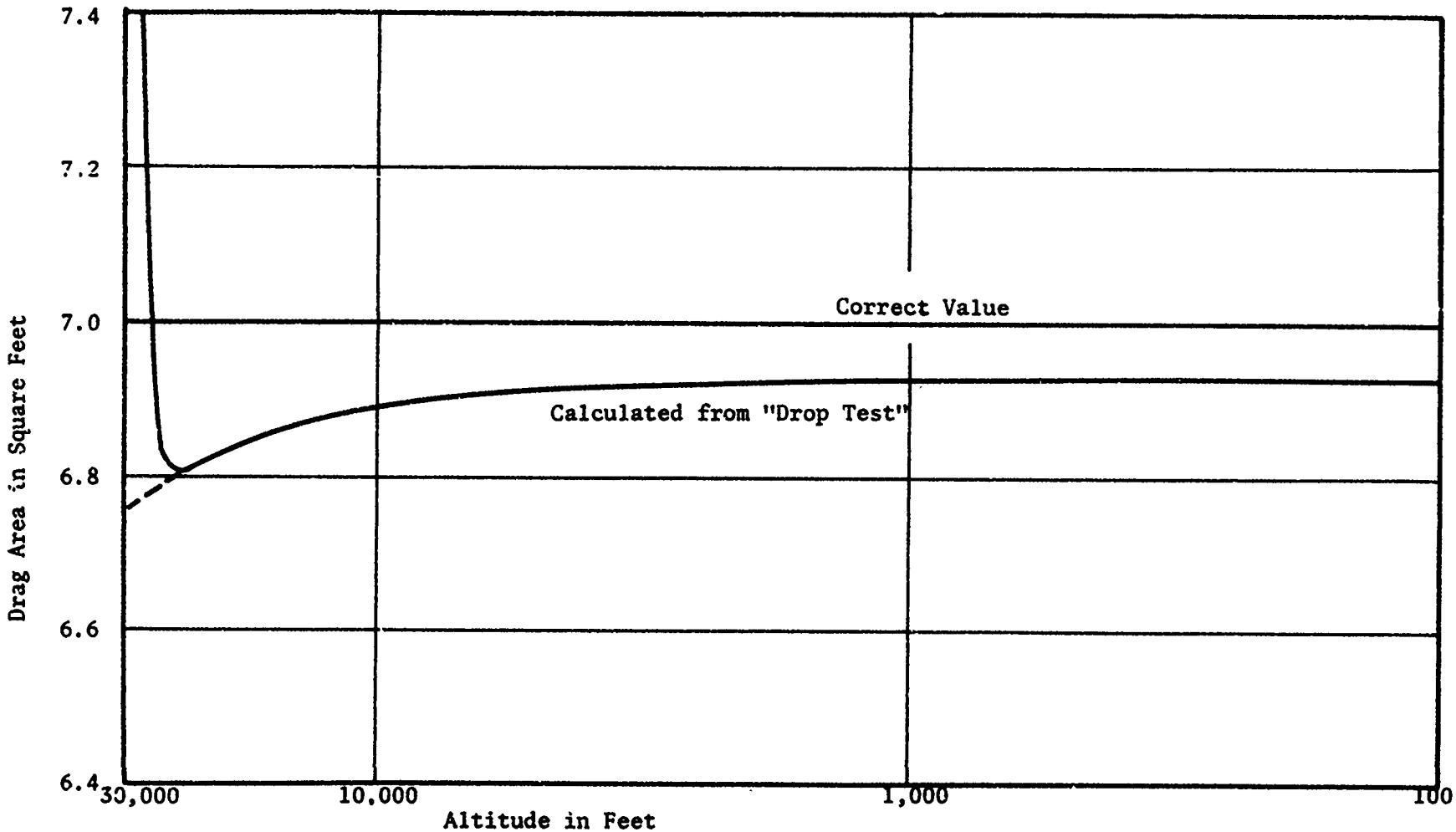

Figure 22. Apparent Drag Area of an Object Dropped from 30,000 feet.

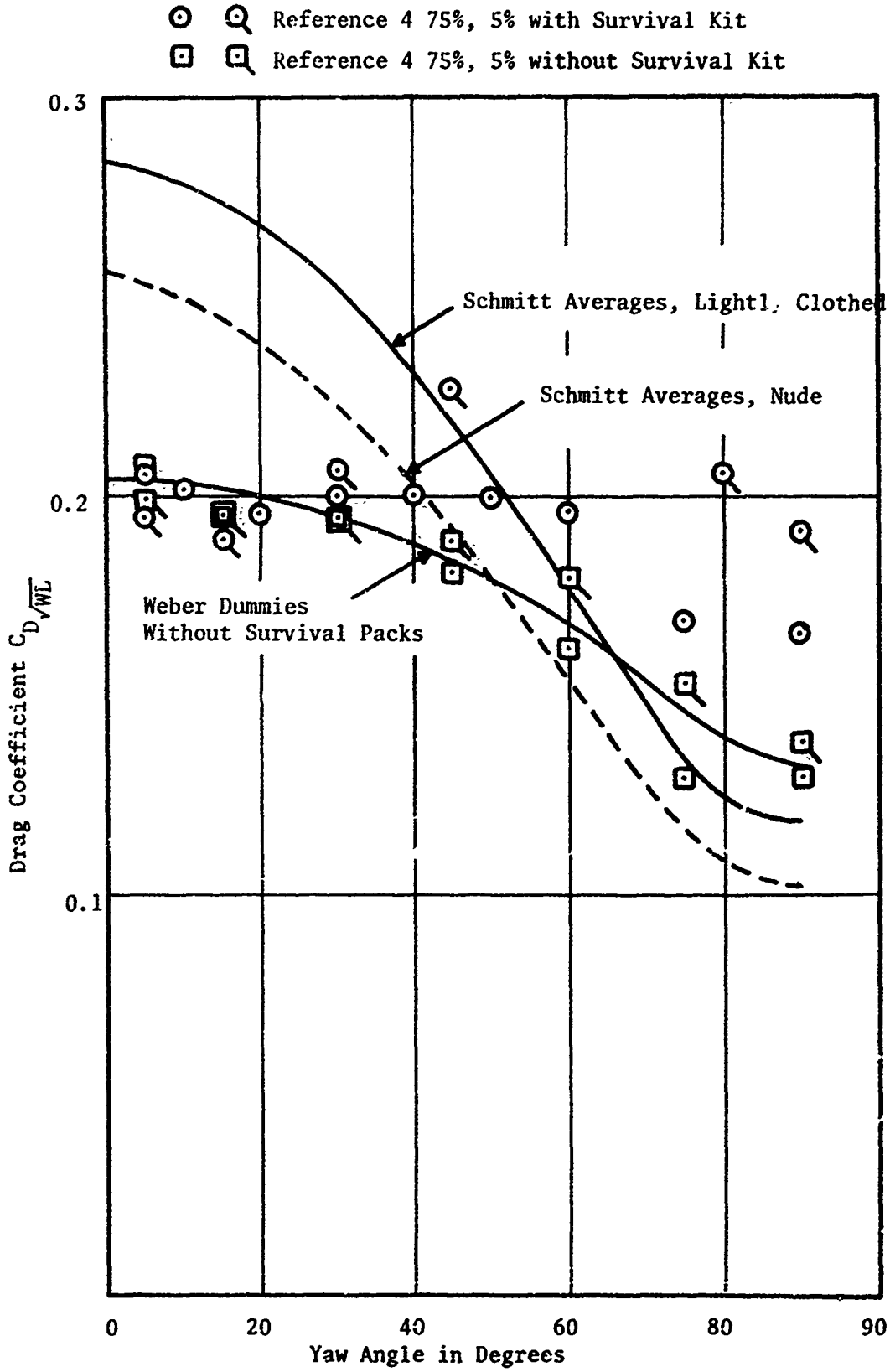

Figure 23. Comparison Between Standing Dummy Drag[4], and the Schmitt[3] Live Subject Data, as a Function of Yaw Angle.

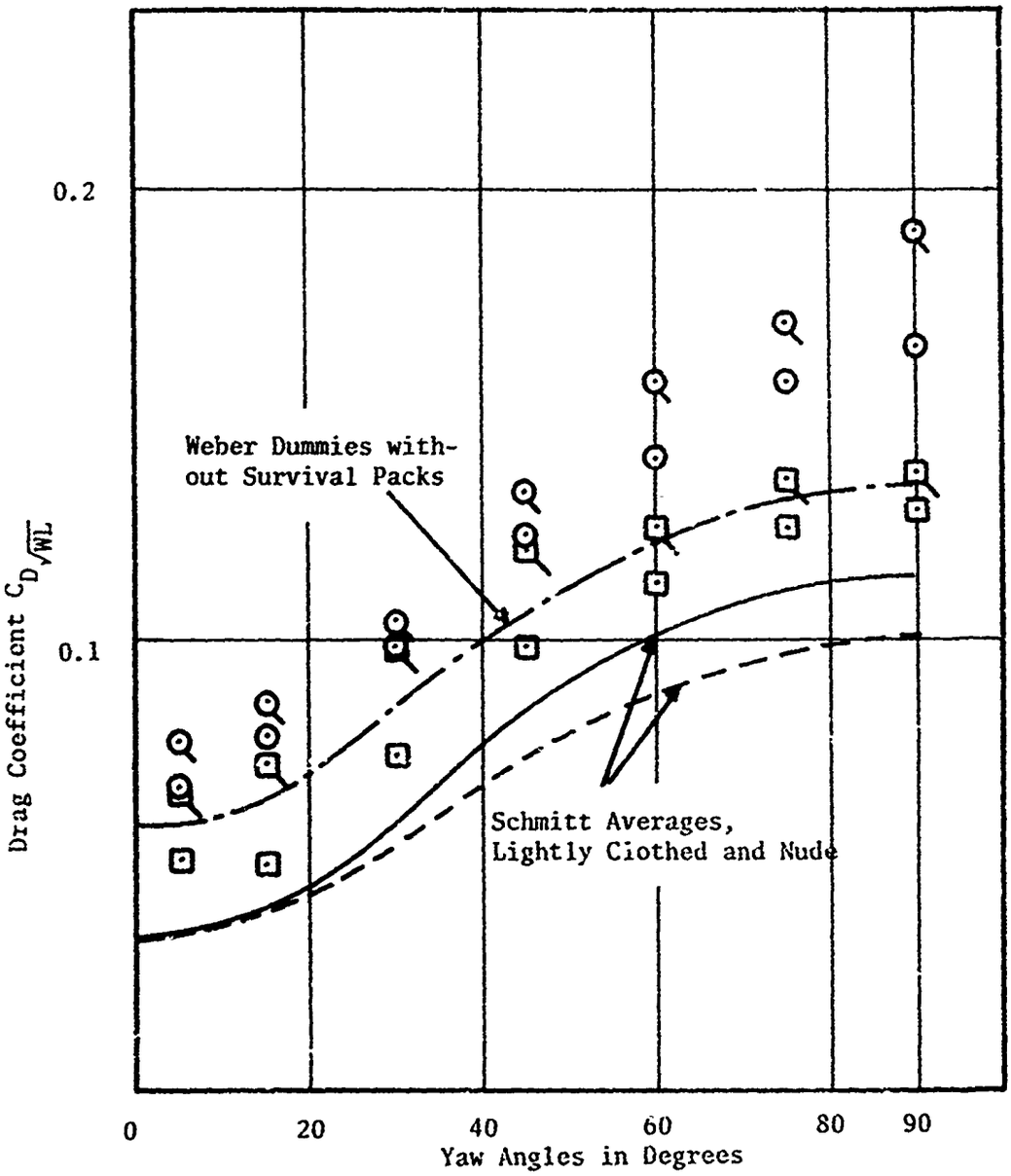

Figure 24. Comparison Between Prone Dummy Drag[4] and the Schmitt[3] Live Subject Data, as a Function of Yaw Angle.

in an ejection seat, allowed her elbows to "spread out" from the face curtain position under the influence of the aerodynamic forces acting on them. Such a discrepancy would completely explain the differences between the Schmitt average and the Rickards and Collins dummy data. But it would not explain the fact that the rest of the data presented in Figure 18 is also lower than the Schmitt averages.

CONCLUSIONS

Available drag data for the human body is scattered between force areas of 5.4 ft^2 and 8.0 ft^2, with the Schmitt averages going as high as 10.0 ft^2 in the same size range. Correlation against

$$\sqrt{\text{weight (lb) x height (ft)}} = \sqrt{WL}$$

reduces the scatter to some extent.

All aerodynamic forces and moments which vary with yaw were measured by Schmitt[3] and these are presented as averages and standard deviations, based on the $\sqrt{WL}$ correlation.

RECOMMENDATION

A more detailed comparison between the Schmitt data and the dummy data of Reference 1, involving forces other than drag, and the aerodynamic moments, should be carried out, in the interests of (hopefully) validating both sets of data.

APPENDIX I

The Schmitt Data in Tabular Form

by

Fred W. Hawker

The Schmitt force and moment coefficients were transformed to coefficients as derived by Payne, Ref. 1. The Payne coefficient data was used as the data base for the elementary statistical analysis. An example of a force coefficient transformation follows:

Schmitt coefficient:

$$C_y = \frac{YS}{qVH} \qquad \text{side force coefficient} \tag{I-1}$$

Payne coefficient:

$$C_{y_{\frac{}{\sqrt{WL}}}} = \frac{Y}{q(WL)^{1/2}} \tag{I-2}$$

Transformation of Schmitt Coefficient:

$$C_{y_{\frac{}{\sqrt{WL}}}} = C_y \times \frac{VH}{S(WL)^{1/2}} \qquad \text{NOTE: } L = H \tag{I-3}$$

$$C_{y_{\frac{}{\sqrt{WL}}}} = \frac{Y}{q(WL)^{1/2}} \tag{I-4}$$

Each coefficient in the form of equation (I-4) for individual subjects is tabulated at varying yaw angles. A statistical analysis of all available subjects at a given yaw angle was performed and the results are shown in Tables 3 thru 8.

Figures 5 to 10 are mean values of the coefficients at dynamic pressures of 9 and 26 pounds per square foot (Table 9). It should be noted that the subjects used to calculate the various coefficients are not always the same. This anomaly is noted for each coefficient in the table.

TABLE I-1

LIST OF SYMBOLS

D - Drag Coefficient - $C_{D_{\sqrt{WL}}}$

L - Lift Coefficient - $C_{L_{\sqrt{WL}}}$

Y - Side Force Coefficient - $C_{Y_{\sqrt{WL}}}$

M - Pitching Moment Coefficient - $C_{M_{L\sqrt{WL}}}$

N - Yaw Moment Coefficient - $C_{N_{L\sqrt{WL}}}$

ℓ - Roll Moment Coefficient - $C_{\ell_{L\sqrt{WL}}}$

9 - Dynamic Pressure in Pounds Per Square Foot

26 - Dynamic Pressure in Pounds Per Square Foot

S1 - Sitting Position

SU - Supine Position

ST - Standing Position

C - Clothed

N - Nude

C1 - 0° Yaw Angle

C2 - 30° Yaw Angle

C3 - 60° Yaw Angle

C4 - 90° Yaw Angle

C5 - 120° Yaw Angle

C6 - 150° Yaw Angle

C7 - 180° Yaw Angle

TABLE I-2

TEST SUBJECTS

SUBJECT NAME	AGE	W WEIGHT IN lb	L HEIGHT IN ft	VOL. IN ft^3	DENSITY IN lb/ft^3	SURFACE AREA IN ft^2
1. King	47	185	6.00	3.022	61.22	22.17
2. Swear	38	155	5.67	2.458	63.06	19.69
3. Cooper	24	196	5.96	3.027	64.75	22.70
4. Brad	38	154	6.17	2.285	67.40	20.98
5. Stovall	16	160	5.92	2.559	62.52	20.66
6. Dalbow	36	165	5.33	2.571	64.18	19.37
7. Zeckman	24	160	5.67	2.496	64.10	20.01
8. Quimby	37	165	5.75	2.771	59.55	20.44
9. Moore	22	158	5.83	2.422	65.24	20.34
10. LeBlanc	20	165	5.75	2.541	64.94	20.44
11. Ohm	27	145	5.75	2.199	65.94	19.37
12. Wagoner	25	169	5.46	2.636	64.11	20.23
13. Novotney	43	160	5.67	2.580	62.02	20.01
14. Garner	32	156	5.42	2.480	62.90	19.05
15. Wilcox	31	155	5.83	2.571	60.29	20.12
Mean (μ)	30.667	163.2	5.74	2.57	63.48	20.37
Std. Dev. (σ)	9.005	12.69	.226	.228	2.14	.989
σ/μ	.294	.078	.039	.089	29.66	.049

TABLE I-3

STATISTICAL ANALYSIS OF DRAG COEFFICIENT AS A FUNCTION OF YAW ANGLE FOR AVAILABLE HUMAN SUBJECT DATA

$$C_{D_{\sqrt{WL}}}$$

TITLE- D9SIC

	C1	C2	C3	C4	C5	C6	C7	
1#	.17745	.17036	.13231	.11611	.13611	.15514	.15956	King
2#	.17859	.16856	.13227	.09622	.12367	.16808	.17906	Swear
3#	.17602	.16183	.12649	.09324	.11905	.15277	.16044	Cooper
4#	.18552	.17614	.13581	.10486	.12382	.16437	.17287	Brad
5#	.17773	.17059	.13318	.10078	.13485	.15057	.15867	Stovall
6#	.18440	.17009	.13049	.10472	.13454	.15720	.16734	Dalbow
7#	.19184	.17657	.13666	.10613	.13995	.15568	.17094	Zechman
8#	.19157	.17740	.13969	.10857	.13134	.15716	.17057	Quimby
9#	.18006	.17025	.13259	.11217	.13065	.16231	.16542	Moore
10#	.18595	.17675	.13401	.10028	.13725	.15727	.17260	LeBlanc
11#	.18470	.18990	.15065	.11063	.14526	.16354	.16989	Ohm
12#	.16919	.16592	.13397	.10402	.12562	.14958	.16265	Wagoner

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.182	.663E-02	.191E-02	.192	.169	.227E-01
C2	.173	.717E-02	.207E-02	.190	.162	.281E-01
C3	.135	.594E-02	.172E-02	.151	.126	.242E-01
C4	.105	.658E-02	.190E-02	.116	.932E-01	.229E-01
C5	.132	.766E-02	.221E-02	.145	.119	.262E-01
C6	.158	.572E-02	.165E-02	.168	.150	.185E-01
C7	.168	.628E-02	.181E-02	.179	.159	.204E-01

TITLE- D26SIC

	C1	C2	C3	C4	C5	C6	C7	
1#	.18092	.17576	.14201	.11906	.14238	.16545	.16742	King
2#	.18981	.18169	.14361	.10290	.12964	.17429	.19196	Swear
3#	.18299	.17299	.13881	.10800	.12417	.15672	.16788	Cooper
4#	.18813	.17680	.13996	.11249	.13538	.17048	.17723	Brad
5#	.18631	.17964	.14033	.10650	.14224	.16689	.16678	Stovall
6#	.19084	.18034	.13979	.11641	.13979	.16961	.17748	Dalbow
7#	.18397	.18479	.14793	.10778	.13666	.16625	.17411	Zechman
8#	.19664	.18702	.15323	.12033	.13691	.16703	.17487	Quimby
9#	.18110	.17654	.14176	.11718	.14657	.16998	.16862	Moore
10#	.19111	.18330	.14428	.11481	.14659	.17418	.17968	LeBlanc
11#	.19427	.19630	.15860	.13639	.15164	.17762	.17658	Ohm
12#	.17588	.17349	.14342	.11210	.12938	.16363	.17129	Wagoner

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.187	.609E-02	.176E-02	.197	.176	.208E-01
C2	.181	.659E-02	.190E-02	.196	.173	.233E-01
C3	.144	.599E-02	.173E-02	.159	.139	.198E-01
C4	.114	.874E-02	.252E-02	.136	.103	.335E-01
C5	.138	.807E-02	.233E-02	.152	.124	.275E-01
C6	.169	.554E-02	.160E-02	.178	.157	.209E-01
C7	.174	.708E-02	.204E-02	.192	.167	.252E-01

TITLE- D9SUC

	C1	C2	C3	C4	C5	C6	C7	
1#	.03412	.05818	.10629	.12249	.10408	.05523	.03142	King
2#	.03534	.05897	.10147	.12200	.10601	.05745	.03438	Swear
3#	.03279	.05557	.09882	.10859	.09859	.05557	.03093	Cooper
4#	.03314	.05799	.09810	.11554	.10290	.05886	.03532	Brad
5#	.03407	.05623	.09721	.11293	.09768	.05575	.03407	Stovall
6#	.03340	.05582	.09470	.10735	.09470	.05344	.03364	Dalbow
7#	.03381	.05776	.10426	.11694	.10473	.05354	.03193	Zechman
8#	.03467	.05770	.09971	.11236	.09996	.05517	.03391	Quimby
9#	.03513	.06148	.10101	.12095	.10869	.05819	.03293	Moore
10#	.03408	.05717	.09793	.11146	.09865	.05573	.03210	LeBlanc

7>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.341E-01	.824E-03	.261E-03	.353E-01	.328E-01	.255E-02
C2	.577E-01	.172E-02	.545E-03	.615E-01	.556E-01	.591E-02
C3	.999E-01	.343E-02	.109E-02	.106	.947E-01	.116E-01
C4	.115	.546E-02	.173E-02	.122	.107	.151E-01
C5	.102	.436E-02	.138E-02	.109	.947E-01	.140E-01
C6	.559E-01	.180E-02	.569E-03	.589E-01	.534E-01	.542E-02
C7	.331E-01	.143E-02	.452E-03	.353E-01	.309E-01	.439E-02

TITLE- D26SUC

	C1	C2	C3	C4	C5	C6	C7	
1#	.03535	.06260	.11218	.12790	.10899	.05941	.03142	King
2#	.03772	.06136	.10624	.12630	.11006	.06004	.03390	Swear
3#	.03325	.05813	.10394	.11626	.10556	.05766	.03023	Cooper
4#	.03335	.05951	.10726	.12557	.10573	.05973	.03292	Brad
5#	.03478	.06051	.10328	.11817	.10817	.05932	.03526	Stovall
6#	.03387	.05821	.10353	.12619	.10759	.05630	.03483	Dalbow
7#	.03569	.05870	.10332	.12069	.10519	.05635	.03064	Zechman
8#	.03695	.05770	.09971	.11996	.10249	.05669	.03442	Quimby
9#	.03629	.06264	.10920	.12421	.11186	.05929	.03211	Moore
10#	.03477	.05800	.10114	.11768	.10157	.05650	.03165	LeBlanc

6>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.352E-01	.150E-02	.474E-03	.377E-01	.332E-01	.447E-02
C2	.597E-01	.192E-02	.606E-03	.626E-01	.577E-01	.494E-02
C3	.105	.377E-02	.119E-02	.112	.997E-01	.125E-01
C4	.122	.421E-02	.133E-02	.128	.116	.116E-01
C5	.107	.324E-02	.103E-02	.112	.102	.103E-01
C6	.581E-01	.157E-02	.495E-03	.600E-01	.563E-01	.374E-02
C7	.327E-01	.179E-02	.567E-03	.353E-01	.302E-01	.503E-02

TITLE- D9STC

	C1	C2	C3	C4	C5	C6	C7	
1#	.27125	.25014	.17355	.12176	.16128	.23529	.26861	King
2#	.27743	.24663	.15853	.11102	.16354	.23039	.26454	Swear
3#	.26898	.23147	.16183	.11277	.16253	.22229	.25089	Cooper
4#	.28874	.24536	.16088	.12164	.17908	.22988	.24485	Brad
5#	.27565	.24802	.17345	.11936	.17201	.23658	.26124	Stovall
6#	.28017	.24523	.17915	.12262	.17056	.23366	.26670	Dalbow
7#	.28259	.25853	.17705	.12821	.17035	.24397	.26745	Zechman
8#	.28483	.25117	.17563	.12274	.17917	.24573	.26851	Quimby
9#	.27878	.25369	.18034	.12583	.16513	.23321	.26051	Novotney
10#	.27979	.24654	.18270	.12804	.17544	.24367	.27444	Garner
11#	.28859	.24923	.17459	.12341	.16702	.22836	.25847	Wilcox

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.280	.636E-02	.192E-02	.289	.269	.198E-01
C2	.248	.672E-02	.202E-02	.259	.231	.271E-01
C3	.173	.831E-02	.251E-02	.183	.159	.242E-01
C4	.122	.551E-02	.166E-02	.128	.111	.172E-01
C5	.170	.637E-02	.192E-02	.179	.161	.179E-01
C6	.235	.729E-02	.220E-02	.246	.222	.234E-01
C7	.262	.855E-02	.258E-02	.274	.245	.296E-01

TITLE- D26STC

	C1	C2	C3	C4	C5	C6	C7	
1#	.28451	.25444	.18091	.12176	.17282	.24180	.26487	King
2#	.28005	.25594	.16975	.12033	.17668	.24149	.26596	Swear
3#	.27356	.24798	.16509	.11765	.16741	.22671	.24798	Cooper
4#	.29909	.25637	.17026	.13756	.19271	.23315	.24383	Brad
5#	.27899	.25326	.18130	.12127	.18857	.25207	.27446	Stovall
6#	.29413	.25966	.18416	.12977	.18655	.25942	.27552	Dalbow
7#	.28259	.25617	.18632	.12445	.18784	.25606	.27003	Zechman
8#	.29306	.26117	.18702	.12982	.18778	.25421	.26775	Quimby
9#	.29237	.26232	.18604	.13367	.17428	.24830	.27312	Novotney
10#	.30216	.26339	.19059	.13026	.19959	.26389	.27556	Garner
11#	.28869	.25818	.18834	.13065	.16998	.23643	.25959	Wilcox

12>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.288	.895E-02	.270E-02	.302	.274	.286E-01
C2	.257	.446E-02	.134E-02	.263	.248	.154E-01
C3	.181	.861E-02	.260E-02	.191	.165	.255E-01
C4	.127	.628E-02	.189E-02	.138	.118	.199E-01
C5	.182	.104E-01	.314E-02	.200	.167	.322E-01
C6	.247	.117E-01	.353E-02	.264	.227	.372E-01
C7	.265	.109E-01	.327E-02	.276	.244	.317E-01

TITLE- D9SIN

	C1	C2	C3	C4	C5	C6	C7	
1#	.15171	.14729	.11808	.10605	.12102	.13354	.13379	King
2#	.15758	.15256	.11365	.08452	.11269	.15376	.15996	Swear
3#	.15091	.14556	.12207	.09138	.11161	.14184	.15067	Cooper
4#	.15456	.15456	.11881	.09614	.12077	.15543	.15587	Brad
5#	.15510	.15010	.11484	.08768	.12508	.13938	.14867	Stovall
6#	.15625	.14993	.12500	.09828	.12285	.14241	.14671	Dalbow
7#	.14887	.15216	.12492	.08664	.11600	.14276	.14957	Zechman
8#	.16981	.16400	.12982	.10200	.13160	.14703	.15159	Quimby
9#	.15902	.15316	.12846	.07832	.12535	.14182	.14273	Moore
10#	.15853	.16034	.12950	.09054	.12607	.14916	.15150	LeBlanc
11#	.14822	.15049	.12271	.08604	.11908	.13632	.14704	Wagoner
12#	.16027	.15950	.12660	.09331	.13141	.15103	.15546	Ohm

23>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.156	.592E-02	.171E-02	.170	.148	.216E-01
C2	.153	.549E-02	.158E-02	.164	.146	.184E-01
C3	.123	.552E-02	.159E-02	.130	.114	.162E-01
C4	.917E-01	.788E-02	.228E-02	.106	.783E-01	.277E-01
C5	.122	.647E-02	.187E-02	.132	.112	.200E-01
C6	.145	.681E-02	.197E-02	.155	.134	.219E-01
C7	.149	.676E-02	.195E-02	.160	.134	.262E-01

TITLE- D26SIN

	C1	C2	C3	C4	C5	C6	C7	
1#	.15845	.15355	.12666	.11587	.12912	.14631	.14716	King
2#	.17166	.16474	.12296	.09192	.11961	.16522	.18097	Swear
3#	.16741	.15613	.13022	.09603	.11835	.15195	.15811	Cooper
4#	.17200	.16721	.12361	.09832	.12797	.16132	.16295	Brad
5#	.16415	.15927	.12079	.09935	.13318	.15701	.15844	Stovall
6#	.17247	.16341	.13478	.10258	.13216	.15506	.16245	Dalbow
7#	.16073	.16343	.12997	.09815	.12234	.15028	.15579	Zechman
8#	.18019	.17208	.13615	.10983	.13463	.15584	.16158	Quimby
9#	.16627	.16627	.13391	.10781	.12820	.15145	.15114	Moore
10#	.17225	.17119	.13529	.10145	.13229	.16014	.15876	LeBlanc
11#	.15747	.15778	.12900	.09966	.12322	.14723	.15452	Wagoner
12#	.17036	.16969	.13306	.10083	.13313	.15631	.16063	Ohm

9>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.168	.670E-02	.193E-02	.180	.157	.227E-01
C2	.164	.601E-02	.174E-02	.172	.154	.185E-01
C3	.130	.522E-02	.151E-02	.136	.121	.154E-01
C4	.102	.652E-02	.188E-02	.116	.919E-01	.240E-01
C5	.128	.566E-02	.163E-02	.135	.118	.163E-01
C6	.155	.570E-02	.164E-02	.165	.146	.189E-01
C7	.159	.826E-02	.239E-02	.181	.147	.338E-01

TITLE- D9SUN

	C1	C2	C3	C4	C5	C6	C7	
1#	.03388	.05401	.08445	.09696	.08935	.05204	.03265	King
2#	.03462	.05420	.08977	.10028	.08977	.05396	.03414	Swear
3#	.02976	.05301	.08208	.09580	.08650	.04976	.03023	Cooper
4#	.03161	.05232	.08328	.09483	.08589	.04970	.03226	Brad
5#	.03312	.05456	.08529	.09435	.08339	.05242	.03431	Stovall
6#	.03220	.05773	.09089	.10353	.09447	.05081	.03173	Dalbow
7#	.03287	.05448	.08923	.09815	.09087	.04884	.03217	Zechman
8#	.03214	.05163	.08124	.08984	.08149	.04935	.03062	Quimby
9#	.03476	.05526	.08545	.09643	.08582	.05233	.03202	Moore
10#	.03318	.05428	.08206	.09415	.08441	.05266	.03084	LeBlanc

11>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.328E-01	.149E-02	.472E-03	.348E-01	.298E-01	.500E-02
C2	.541E-01	.168E-02	.531E-03	.577E-01	.516E-01	.610E-02
C3	.854E-01	.348E-02	.110E-02	.909E-01	.812E-01	.965E-02
C4	.964E-01	.372E-02	.118E-02	.104	.898E-01	.137E-01
C5	.872E-01	.390E-02	.123E-02	.945E-01	.815E-01	.130E-01
C6	.512E-01	.172E-02	.545E-03	.540E-01	.488E-01	.512E-02
C7	.321E-01	.137E-02	.432E-03	.343E-01	.302E-01	.408E-02

TITLE- D26SUN

	C1	C2	C3	C4	C5	C6	C7	
1#	.03486	.05695	.09549	.10985	.09782	.05450	.03535	King
2#	.03390	.05587	.09741	.11150	.09813	.05491	.03319	Swear
3#	.03069	.05418	.09022	.10487	.08952	.05103	.02767	Cooper
4#	.03096	.05450	.09047	.10529	.09069	.05319	.03161	Brad
5#	.03312	.05956	.09089	.10590	.09339	.05766	.03193	Stovall
6#	.03578	.06274	.09876	.11641	.10496	.05797	.03077	Dalbow
7#	.03311	.05377	.09064	.10191	.09257	.05412	.03193	Zechman
8#	.03214	.05163	.08124	.08984	.08149	.04935	.03062	Quimby
9#	.03477	.05656	.09216	.10622	.09710	.05529	.03103	Moore
10#	.03234	.05612	.08796	.10314	.09227	.05238	.02965	LeBlanc

15>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.332E-01	.168E-02	.533E-03	.358E-01	.307E-01	.509E-02
C2	.562E-01	.314E-02	.992E-03	.627E-01	.516E-01	.111E-01
C3	.915E-01	.501E-02	.158E-02	.988E-01	.812E-01	.175E-01
C4	.105	.698E-02	.221E-02	.116	.898E-01	.266E-01
C5	.938E-01	.627E-02	.198E-02	.105	.815E-01	.235E-01
C6	.540E-01	.270E-02	.854E-03	.580E-01	.494E-01	.862E-02
C7	.314E-01	.204E-02	.646E-03	.354E-01	.277E-01	.768E-02

TITLE- D9STN

	C1	C2	C3	C4	C5	C6	C7	
1#	.24008	.20719	.13796	.10040	.14017	.19638	.21725	King
2#	.23946	.21475	.14540	.09502	.14039	.20055	.23386	Swear
3#	.23694	.20311	.13707	.09766	.13626	.19229	.21926	Cooper
4#	.24231	.21582	.14453	.09832	.15478	.19773	.21495	Brad
5#	.25159	.21943	.15081	.09077	.14104	.20382	.23206	Stovall
6#	.25090	.22256	.15196	.10043	.14301	.20778	.22615	Dalbow
7#	.24948	.21250	.15497	.09557	.15474	.21320	.22753	Zechman
8#	.25901	.22751	.15210	.09515	.15347	.21220	.24016	Quimby
9#	.25369	.22066	.15359	.10184	.11014	.20387	.23210	Novotney
10#	.25810	.21634	.15948	.11103	.15938	.20927	.23010	Garner
11#	.25736	.22207	.15427	.09903	.14374	.18956	.22078	Wilcox

15>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.249	.804E-02	.242E-02	.259	.237	.221E-01
C2	.217	.707E-02	.213E-02	.228	.203	.244E-01
C3	.149	.716E-02	.216E-02	.159	.137	.224E-01
C4	.987E-01	.518E-02	.156E-02	.111	.908E-01	.203E-01
C5	.143	.134E-01	.404E-02	.159	.110	.492E-01
C6	.202	.788E-02	.238E-02	.213	.190	.236E-01
C7	.227	.788E-02	.238E-02	.240	.215	.252E-01

TITLE- D26STN

	C1	C2	C3	C4	C5	C6	C7	
1#	.24928	.21909	.15195	.10605	.14974	.21332	.22977	King
2#	.25952	.23254	.15232	.09932	.15352	.21129	.23803	Swear
3#	.24252	.21252	.14974	.10696	.14788	.20241	.21857	Cooper
4#	.26509	.23347	.15914	.10791	.15815	.20274	.22062	Brad
5#	.26732	.23444	.16177	.09840	.16451	.22729	.24969	Stovall
6#	.26240	.23092	.16484	.10973	.16269	.22352	.24499	Dalbow
7#	.26087	.22765	.15498	.10543	.16390	.22143	.23199	Zechman
8#	.27939	.23751	.16045	.10148	.17285	.22809	.24953	Quimby
9#	.26402	.22975	.16164	.11412	.15353	.22404	.24416	Novotney
10#	.26875	.22648	.16075	.11643	.16179	.23783	.24444	Garner
11#	.26272	.23186	.15777	.10532	.15285	.20216	.23157	Wilcox

19>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.262	.969E-02	.292E-02	.279	.243	.369E-01
C2	.229	.724E-02	.218E-02	.238	.213	.250E-01
C3	.158	.484E-02	.146E-02	.165	.150	.151E-01
C4	.106	.561E-02	.169E-02	.116	.984E-01	.180E-01
C5	.160	.104E-01	.312E-02	.182	.148	.339E-01
C6	.218	.121E-01	.363E-02	.238	.202	.357E-01
C7	.237	.110E-01	.331E-02	.250	.219	.311E-01

TABLE I-4

STATISTICAL ANALYSIS OF LIFT COEFFICIENT AS A FUNCTION OF YAW ANGLE FOR AVAILABLE HUMAN SUBJECT DATA

$C_{L_{\sqrt{WL}}}$

TITLE- L9SIC

	YAW0	YAW30	YAW60	YAW120	YAW150	YAW180	
1#	-.05941	-.05842	-.02381	.01571	.02848	.03584	King
2#	-.06327	-.05324	-.03008	.01265	.03414	.03820	Swear
3#	-.05394	-.05208	-.02534	.01070	.02418	.02674	Cooper
4#	-.05821	-.04883	-.02725	.00676	.01940	.03030	Brad
5#	-.05789	-.05289	-.03193	.01334	.02263	.03026	Stovall
6#	-.06131	-.05844	-.03053	.02171	.04079	.04723	Dalbow
7#	-.06598	-.05753	-.03099	.02583	.03311	.04203	Zechman
8#	-.06301	-.05897	-.03884	.01898	.02936	.03189	Quimby
9#	-.00548	-.00439	-.00292	.00109	.00329	.00329	Moore
10#	-.05807	-.05266	-.02344	.01731	.02921	.03426	LeBlanc
11#	-.05772	-.05310	-.03078	.01962	.02847	.02962	Ohm
12#	-.05809	-.05373	-.02178	.00871	.03195	.03884	Wagoner

10>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW0	-.552E-01	.160E-01	.461E-02	-.548E-02	-.660E-01	.605E-01
YAW30	-.504E-01	.148E-01	.428E-02	-.439E-02	-.590E-01	.546E-01
YAW60	-.265E-01	.877E-02	.253E-02	-.292E-02	-.388E-01	.359E-01
YAW120	.144E-01	.693E-02	.200E-02	.258E-01	.109E-02	.247E-01
YAW150	.271E-01	.936E-02	.270E-02	.408E-01	.329E-02	.375E-01
YAW180	.324E-01	.109E-01	.314E-02	.472E-01	.329E-02	.439E-01

TITLE- L9SIC
YAW90

1#	.00025	King
2#	-.00814	Cooper
3#	.00065	Brad
4#	-.00143	Stovall
5#	.00525	Dalbow
6#	.00305	Zechman
7#	.00228	Quimby
8#	-.00036	Moore
9#	-.00072	LeBlanc
10#	.00153	Ohm
11#	-.00072	Wagoner

50>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW90	.149E-03	.338E-02	.102E-02	.525E-02	-.814E-02	.134E-01

TITLE- L26SIC

	C1	C2	C3	C4	C5	C6	C7	
1#	-.06039	-.05867	-.02037	-.00147	.00577	.02234	.03130	King
2#	-.06446	-.06017	-.03199	-.00334	.01289	.02602	.03605	Swear
3#	-.05929	-.05720	-.03651	-.01302	.00535	.01975	.02465	Cooper
4#	-.05995	-.04970	-.02376	-.00523	.00218	.01286	.03008	Brad
5#	-.06337	-.05837	-.03228	-.00142	.00762	.02287	.02597	Stovall
6#	-.06679	-.06178	-.03685	-.01217	.01813	.04198	.03865	Dalbow
7#	-.06176	-.06082	-.04297	-.00352	.01244	.02841	.03331	Zechman
8#	-.06782	-.06630	-.04555	-.00278	.01923	.03113	.03037	Quimby
9#	-.01900	-.01596	-.00443	-.00101	.00202	.00570	.00886	Moore
10#	-.06293	-.05594	-.03083	-.00486	.01673	.02934	.02360	LeBlanc
11#	-.06247	-.05754	-.03090	-.00146	.01518	.02624	.02477	Ohm
12#	-.06158	-.05793	-.02714	-.00578	.00603	.03053	.03481	Wagoner

>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.592E-01	.129E-01	.373E-02	-.190E-01	-.678E-01	.488E-01
C2	-.550E-01	.129E-01	.373E-02	-.160E-01	-.663E-01	.503E-01
C3	-.303E-01	.109E-01	.314E-02	-.443E-02	-.456E-01	.411E-01
C4	-.467E-02	.403E-02	.116E-02	-.101E-02	-.130E-01	.120E-01
C5	.103E-01	.620E-02	.179E-02	.192E-01	.202E-02	.172E-01
C6	.248E-01	.928E-02	.268E-02	.420E-01	.570E-02	.363E-01
C7	.286E-01	.790E-02	.228E-02	.386E-01	.886E-02	.298E-01

TITLE- L9SUC

	C1	C2	C3	C4	C5	C6	C7	
1#	.00196	.00540	-.00393	-.02798	-.00442	.01178	-.00196	King
2#	.00525	.01433	.01958	.00263	.00382	.01433	-.00215	Swear
3#	.00558	.02302	.01953	.01104	.01209	.01860	-.00419	Cooper
4#	-.00065	.01155	.01875	.01657	.00676	.01831	-.00109	Brad
5#	.00286	.02120	.01048	-.00762	.00758	.01549	-.00357	Stovall
6#	-.00215	.01384	.00835	.00787	.00787	.01193	.00119	Dalbow
7#	.00657	.01432	.02512	.00470	.01362	.01080	-.00446	Zachman
8#	.00785	.01012	.00785	.00785	.00860	.00709	-.00582	Quimby
9#	.00365	.01720	.01573	-.00402	.01024	.01720	.00109	Moore
10#	.00432	.02020	.02452	.00144	.00216	.00793	-.00432	LeBlanc

7>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.352E-02	.313E-02	.991E-03	.785E-02	-.215E-02	.100E-01
C2	.151E-01	.542E-02	.171E-02	.230E-01	.540E-02	.176E-01
C3	.146E-01	.895E-02	.283E-02	.251E-01	-.393E-02	.291E-01
C4	.125E-02	.124E-01	.393E-02	.166E-01	-.280E-01	.445E-01
C5	.693E-02	.527E-02	.167E-02	.136E-01	-.442E-02	.180E-01
C6	.133E-01	.411E-02	.130E-02	.186E-01	.709E-02	.115E-01
C7	-.275E-02	.210E-02	.663E-03	.119E-02	-.582E-02	.701E-02

TITLE- L26SUC

	YAW30	YAW60	YAW90	YAW120	YAW150	YAW180	
1#	.00245	-.01399	-.02479	-.00712	.00810	-.00196	King
2#	.01361	.00895	-.01194	-.00454	.01074	-.00143	Swear
3#	.01883	.01069	-.01604	-.00023	.01604	-.00395	Cooper
4#	.01025	.01025	.01286	.00501	.01286	.00392	Brad
5#	.02216	.01072	.01370	.00238	.01501	-.00214	Stovall
6#	.01193	-.00477	-.01479	-.01145	.00716	.00310	Dalbow
7#	.01503	.01573	.00611	.01080	.00986	-.00235	Zechman
8#	.01645	.01620	.00658	.00734	.00456	-.00506	Quimby
9#	.01190	.00354	-.00443	.00696	.01634	.00075	Moore
10#	.01448	.00224	-.01148	-.00174	.00799	-.00287	LeBlanc

93>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW30	.137E-01	.530E-02	.168E-02	.222E-01	.245E-02	.197E-01
YAW60	.596E-02	.946E-02	.299E-02	.162E-01	-.140E-01	.302E-01
YAW90	-.442E-02	.134E-01	.425E-02	.137E-01	-.248E-01	.385E-01
YAW120	.741E-03	.707E-02	.224E-02	.108E-01	-.115E-01	.222E-01
YAW150	.109E-01	.406E-02	.128E-02	.163E-01	.456E-02	.118E-01
YAW180	-.120E-02	.292E-02	.923E-03	.392E-02	-.506E-02	.398E-02

TITLE- L26SUC

	YAW0	
1#	.00597	Swear
2#	.00558	Cooper
3#	.00022	Brad
4#	.00334	Stovall
5#	-.00119	Dalbow
6#	.00564	Zechman
7#	.00709	Quimby
8#	.00303	Moore
9#	.00424	LeBlanc

88>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW0	.377E-02	.276E-02	.919E-03	.709E-02	-.119E-02	.828E-02

TITLE- L9STC

	YAW0	YAW30	YAW60	YAW120	YAW180	
1#	.00098	.01497	.00761	.00025	-.01325	King
2#	.00931	.00931	.01194	.00406	-.00322	Swear
3#	.00953	.00814	.00349	.00070	-.00512	Cooper
4#	.01548	.01286	.00894	.00458	.00109	Brad
5#	.00477	.00524	.00262	.00548	.00047	Stovall
6#	.01503	.01622	.01240	.00859	-.00644	Dalbow
7#	.00587	.00469	.00657	.00845	.00012	Zechman
8#	-.00228	.00329	.00582	.01038	-.00278	Quimby
9#	.00811	.00701	.00959	.00627	-.00627	Novotney
10#	-.00076	.00458	.00802	.00573	-.00630	Garner
11#	.00147	.00147	.00812	.00812	-.00369	Wilcox

32>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW0	.614E-02	.600E-02	.181E-02	.155E-01	-.228E-02	.178E-01
YAW30	.798E-02	.487E-02	.147E-02	.162E-01	.147E-02	.148E-01
YAW60	.774E-02	.306E-02	.923E-03	.124E-01	.262E-02	.978E-02
YAW120	.569E-02	.320E-02	.966E-03	.104E-01	.250E-03	.101E-01
YAW180	-.413E-02	.410E-02	.124E-02	.109E-02	-.133E-01	.143E-01

TITLE- L9STC

	YAW90	
1#	.00098	King
2#	-.00310	Swear
3#	-.00628	Cooper
4#	-.00153	Brad
5#	-.00119	Stovall
6#	.00072	Dalbow
7#	.00329	Zechman
8#	-.00221	Novotney
9#	.00152	Garner
10#	-.00036	Wilcox

38>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW90	-.816E-03	.270E-02	.855E-03	.329E-02	-.628E-02	.957E-02

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TITLE- L9STC
       YAW150
1#    -.00270   King
2#    -.00302   Cooper
3#    -.00044   Brad
4#    -.00286   Stovall
5#     .00119   Dalbow
6#     .00117   Zechman
7#     .00151   Quimby
8#     .00147   Novotney
9#    -.00019   Garner
10#   -.00628   Wilcox


44>ELEMENTARY


VARIABLE     MEAN      STD DEV    STD ERR     MAXIMUM     MINIMUM       RANGE

YAW150 -.102E-02    .261E-02   .824E-03    .151E-02   -.628E-02    .779E-02
```

TITLE- L26STC

	C1	C2	C3	C4	C5	C6	C7	
1#	.00429	.01154	.00380	-.00172	-.00540	-.01350	-.02001	King
2#	.00430	.00310	.00716	-.00239	-.00096	-.00406	-.00668	Swear
3#	-.00791	.00023	.00070	-.00419	-.00047	-.00535	-.00977	Cooper
4#	.00589	.00795	.00807	-.00022	.00131	-.00458	-.00480	Brad
5#	-.01191	-.00727	.00214	-.00619	.00023	-.00334	-.00774	Stovall
6#	.00513	.01050	.00954	.00072	-.00095	-.01312	-.01503	Dalbow
7#	.00258	.00164	.00493	.00047	-.00070	-.00564	-.00352	Zechman
8#	-.00037	.00127	.00025	.00177	.00202	-.01063	-.01786	Quimby
9#	.00651	.00561	.00574	-.00319	.00114	-.00102	-.01673	Novotney
10#	-.00621	-.00026	.00595	-.00198	-.00264	-.00767	-.01415	Garner
11#	.00000	.00799	.00754	-.00076	.00232	-.00741	.01215	Wilcox

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.209E-03	.624E-02	.188E-02	.651E-02	-.119E-01	.184E-01
C2	.385E-02	.553E-02	.167E-02	.115E-01	-.727E-02	.188E-01
C3	.507E-02	.305E-02	.921E-03	.954E-02	.250E-03	.929E-02
C4	-.161E-02	.234E-02	.705E-03	.177E-02	-.619E-02	.796E-02
C5	-.373E-03	.223E-02	.672E-03	.232E-02	-.540E-02	.772E-02
C6	-.694E-02	.402E-02	.121E-02	-.102E-02	-.135E-01	.125E-01
C7	-.947E-02	.907E-02	.273E-02	.122E-01	-.200E-01	.322E-01

TITLE- L9SIN

	C1	C2	C3	C4	C5	C6	C7	
1#	-.05131	-.04468	-.01276	-.00736	.00761	.01694	.02111	King
2#	-.05205	-.04417	-.02101	-.00406	.01526	.03677	.03605	Swear
3#	-.04720	-.04209	-.02627	-.00628	.00791	.01883	.02511	Cooper
4#	-.04316	-.03750	-.02267	.00153	.00719	.01591	.01591	Brad
5#	-.05289	-.04527	-.01835	-.00191	.01644	.02192	.02907	Stovall
6#	-.05272	-.05057	-.02481	-.00477	.01837	.03626	.03531	Dalbow
7#	-.04673	-.04673	-.02137	.00258	.01174	.01996	.03381	Zechman
8#	-.05618	-.05719	-.03265	-.00405	.01620	.02227	.02708	Quimby
9#	-.00439	-.00439	-.00439	.00036	.00256	.00329	.00219	Moore
10#	-.04725	-.04400	-.02308	-.00036	.01551	.02741	.02994	LeBlanc
11#	-.05046	-.04611	-.01924	.00036	.01851	.02650	.03703	Wagoner
12#	-.04579	-.04232	-.02000	.00038	.01654	.02539	.03347	Ohm

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.458E-01	.136E-01	.392E-02	-.439E-02	-.562E-01	.518E-01
C2	-.421E-01	.128E-01	.370E-02	-.439E-02	-.572E-01	.528E-01
C3	-.206E-01	.699E-02	.202E-02	-.439E-02	-.327E-01	.283E-01
C4	-.197E-02	.325E-02	.938E-03	.258E-02	-.736E-02	.994E-02
C5	.128E-01	.526E-02	.152E-02	.185E-01	.256E-02	.160E-01
C6	.226E-01	.907E-02	.262E-02	.368E-01	.329E-02	.335E-01
C7	.272E-01	.101E-01	.292E-02	.370E-01	.219E-02	.348E-01

TITLE- L26SIN

	C1	C2	C3	C4	C5	C6	C7	
1#	-.05032	-.04664	-.02111	-.00344	.00540	.01497	.01878	King
2#	-.05658	-.05109	-.02698	-.00621	.01170	.02793	.03342	Swear
3#	-.05255	-.04767	-.02499	-.00744	.00558	.01628	.02581	Cooper
4#	-.04927	-.04186	-.02551	-.00153	.00807	.01221	.01068	Brad
5#	-.05623	-.04872	-.02120	-.00143	.00607	.01989	.02406	Stovall
6#	-.05892	-.05630	-.03518	-.00740	.01765	.03459	.03483	Dalbow
7#	-.04884	-.04861	-.02301	-.00047	.00564	.02066	.02935	Zechman
8#	-.05998	-.06150	-.03581	-.00658	.00911	.02176	.02151	Quimby
9#	-.01545	-.01380	-.00608	-.00114	.00392	.00582	.00671	Moore
10#	-.05481	-.05269	-.02634	-.00124	.00824	.02609	.02360	LeBlanc
11#	-.05580	-.05240	-.02186	-.00113	.00879	.02287	.03028	Wagoner
12#	-.05101	-.04702	-.02104	-.00119	.01371	.02357	.02903	Ohm

17>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.508E-01	.117E-01	.339E-02	-.154E-01	-.600E-01	.445E-01
C2	-.474E-01	.117E-01	.338E-02	-.138E-01	-.615E-01	.477E-01
C3	-.241E-01	.759E-02	.219E-02	-.608E-02	-.358E-01	.297E-01
C4	-.327E-02	.279E-02	.807E-03	-.470E-03	-.744E-02	.697E-02
C5	.866E-02	.399E-02	.115E-02	.177E-01	.392E-02	.137E-01
C6	.206E-01	.760E-02	.219E-02	.346E-01	.532E-02	.288E-01
C7	.240E-01	.860E-02	.248E-02	.348E-01	.671E-02	.281E-01

TITLE- L9SUN

	YAW0	YAW30	YAW60	YAW90	YAW120	YAW150	
1#	.00393	.01497	.01694	.01436	.00601	.01424	King
2#	.00645	.01982	.02244	.01051	.01265	.01265	Swear
3#	.00395	.01767	.01883	.00581	.00628	.01465	Cooper
4#	.00654	.01984	.02485	.01700	.01918	.01046	Brad
5#	.00786	.02525	.02525	.01811	.01334	.00929	Stovall
6#	.00310	.01574	.01121	.00906	.00573	.00453	Dalbow
7#	.00517	.01620	.01291	-.00822	.01338	.01104	Zechman
8#	-.00152	.01797	.01038	.00582	.00860	.01038	Quimby
9#	.00439	.02122	.01756	.00548	.01244	.01244	Moore
10#	.00649	.02092	.01442	.00613	.01478	.01118	LeBlanc

54>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW0	.464E-02	.263E-02	.832E-03	.786E-02	-.152E-02	.938E-02
YAW30	.190E-01	.310E-02	.981E-03	.253E-01	.150E-01	.103E-01
YAW60	.175E-01	.532E-02	.168E-02	.253E-01	.109E-01	.144E-01
YAW90	.841E-02	.754E-02	.238E-02	.181E-01	-.822E-02	.263E-01
YAW120	.112E-01	.444E-02	.140E-02	.192E-01	.573E-02	.135E-01
YAW150	.111E-01	.287E-02	.907E-03	.147E-01	.453E-02	.101E-01

TITLE- L9SUN

	YAW180	
1#	-.00196	King
2#	-.00334	Swear
3#	-.00419	Cooper
4#	-.00174	Brad
5#	-.00071	Stovall
6#	-.00143	Dalbow
7#	-.00070	Zechman
8#	-.00073	Moore
9#	-.00432	LeBlanc

60>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW180	-.212E-02	.147E-02	.489E-03	-.700E-03	-.432E-02	.362E-02

TITLE- L26SUN

	YAW0	YAW30	YAW60	YAW120	YAW150	
1#	.00393	.01203	.00982	.00110	.01718	King
2#	.00573	.01767	.01456	.00382	.00931	Swear
3#	.00349	.01790	.01418	.00372	.00907	Cooper
4#	.00632	.01984	.02398	.01679	.00894	Brad
5#	.00715	.02311	.01370	.00882	.01191	Stovall
6#	.00477	.00787	.00906	-.00072	.01193	Dalbow
7#	.00423	.01832	.01338	.01432	.01385	Zechman
8#	.00127	.01645	.01797	-.00127	.00443	Quimby
9#	.00430	.01722	.02077	.00835	.00785	Moore
10#	.00599	.02197	.01579	.01873	.00911	LeBlanc

74>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW0	.472E-02	.169E-02	.533E-03	.715E-02	.127E-02	.588E-02
YAW30	.172E-01	.446E-02	.142E-02	.231E-01	.787E-02	.152E-01
YAW60	.153E-01	.459E-02	.145E-02	.240E-01	.906E-02	.149E-01
YAW120	.737E-02	.726E-02	.230E-02	.187E-01	-.127E-02	.200E-01
YAW150	.104E-01	.352E-02	.111E-02	.172E-01	.443E-02	.128E-01

TITLE- L26SUN

	YAW90	
1#	-.00215	Swear
2#	-.00209	Cooper
3#	.00577	Brad
4#	.00548	Stovall
5#	.00215	Dalbow
6#	.00293	Zechman
7#	.00456	Quimby
8#	.00795	Moore
9#	.00892	LeBlanc

70>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW90	.372E-02	.394E-02	.131E-02	.892E-02	-.215E-02	.111E-01

TITLE- L26SUN

	YAW180	
1#	.00221	King
2#	.00203	Swear
3#	.00256	Cooper
4#	-.00131	Brad
5#	-.00119	Stovall
6#	.00282	Zechman
7#	-.00025	Quimby
8#	-.00012	Moore
9#	-.00324	LeBlanc

80>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW180	.390E-03	.212E-02	.706E-03	.282E-02	-.324E-02	.606E-02

TITLE- L9STN

	YAW0	YAW90	YAW120	YAW180	
1#	.00098	-.00172	.00295	-.00663	King
2#	.00525	.00131	.00131	.00573	Swear
3#	.00814	-.00349	.00326	.00163	Cooper
4#	.00458	-.00545	.00283	-.00218	Brad
5#	-.00477	.00191	.00548	-.00143	Stovall
6#	.00131	.00453	.01050	.00525	Dalbow
7#	-.00188	.00070	.01033	.00211	Zechman
8#	.00658	-.00076	.00658	.00582	Quimby
9#	.00369	.00110	.00922	.00369	Novotney
10#	.00382	.00267	.01146	-.00114	Garner
11#	-.00665	.00000	.00812	-.00554	Wilcox

6>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW0	.191E-02	.468E-02	.141E-02	.814E-02	-.665E-02	.148E-01
YAW90	.727E-04	.283E-02	.853E-03	.453E-02	-.545E-02	.998E-02
YAW120	.655E-02	.360E-02	.109E-02	.115E-01	.131E-02	.102E-01
YAW180	.665E-03	.439E-02	.132E-02	.582E-02	-.663E-02	.125E-01

TITLE- L9STN
YAW30

1#	.00835	King
2#	.00657	Swear
3#	.00674	Cooper
4#	.00665	Brad
5#	-.00119	Stovall
6#	.00668	Dalbow
7#	.00228	Quimby
8#	.00738	Novotney
9#	.00535	Garner
10#	.00480	Wilcox

14>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW30	.536E-02	.284E-02	.898E-03	.835E-02	-.119E-02	.954E-02

TITLE- L9STN

	YAW60	
1#	.00393	King
2#	.00597	Swear
3#	.00070	Cooper
4#	.00458	Brad
5#	.00859	Dalbow
6#	.00822	Zechman
7#	.00430	Quimby
8#	.00774	Novotney
9#	.00688	Garner
10#	.00406	Wilcox

6>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW60	.550E-02	.245E-02	.774E-03	.859E-02	.700E-03	.789E-02

TITLE- L9STN

	YAW150	
1#	-.00025	King
2#	.00716	Swear
3#	.00256	Cooper
4#	-.00153	Brad
5#	.00357	Stovall
6#	.00668	Dalbow
7#	.00634	Zechman
8#	.00258	Novotney
9#	.00420	Garner
10#	-.00110	Wilcox

28>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
YAW150	.302E-02	.320E-02	.101E-02	.716E-02	-.153E-02	.869E-02

TITLE- L26STN

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00650	.00442	.00025	-.00147	.01375	-.00638	-.00221	King
2#	-.00465	.00263	.00478	-.00501	.00573	-.00358	-.00215	Swear
3#	.00151	-.00011	.00093	-.00488	.00256	.00011	-.00465	Cooper
4#	.00044	.00371	.00632	-.00458	-.00044	-.00349	-.00349	Brad
5#	-.00596	-.00477	-.00167	-.00142	-.00369	-.00643	-.00786	Stovall
6#	-.00119	.00012	.00692	.00191	.00620	-.00178	-.00942	Dalbow
7#	.00681	.00622	.00634	-.00352	.00564	-.00023	-.00598	Zechman
8#	-.00962	-.00835	.00025	-.00076	-.00329	-.01063	-.01721	Quimby
9#	-.00447	.00344	.00370	-.00089	.00421	-.00498	-.00600	Novotney
10#	-.00251	.00125	.00582	.00052	.00449	-.00039	-.00754	Garner
11#	-.00716	-.00498	.00191	-.00153	.00332	-.00728	-.01208	Wilcox

25>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.303E-02	.468E-02	.141E-02	.681E-02	-.962E-02	.164E-01
C2	.325E-03	.457E-02	.138E-02	.622E-02	-.835E-02	.146E-01
C3	.323E-02	.302E-02	.909E-03	.692E-02	-.167E-02	.859E-02
C4	-.197E-02	.227E-02	.685E-03	.191E-02	-.501E-02	.692E-02
C5	.350E-02	.487E-02	.147E-02	.138E-01	-.369E-02	.174E-01
C6	-.410E-02	.342E-02	.103E-02	.110E-03	-.106E-01	.107E-01
C7	-.714E-02	.451E-02	.136E-02	-.215E-02	-.172E-01	.151E-01

TABLE I-5

STATISTICAL ANALYSIS OF SIDE FORCE COEFFICIENT AS A FUNCTION OF YAW ANGLE FOR AVAILABLE HUMAN SUBJECT DATA

$$C_{Y_{\sqrt{WL}}}$$

TITLE- Y9SIC

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00638	-.02209	-.01399	.02013	.01509	.0085	.00343	King
2#	.00143	-.01313	-.02316	-.01122	.02220	.04346	.00716	Swear
3#	.00674	-.02092	-.02255	-.01929	-.02301	.03115	.00488	Cooper
4#	-.00109	-.02604	-.03597	.01700	.01983	.02310	-.00545	Brad
5#	-.00262	-.02119	-.03191	-.01286	.01834	.00619	-.00119	Stovall
6#	.00214	-.03219	-.02933	.00787	.01645	.01717	-.00453	Dalbow
7#	.00187	-.01925	-.03545	-.00399	.02841	.01408	-.00399	Zechman
8#	.00329	-.03442	-.03998	.02124	.01822	.00683	-.00253	Quimby

26>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.673E-03	.399E-02	.141E-02	.674E-02	-.638E-02	.131E-01
C2	-.237E-01	.698E-02	.247E-02	-.131E-01	-.344E-01	.213E-01
C3	-.290E-01	.862E-02	.305E-02	-.140E-01	-.400E-01	.260E-01
C4	.236E-02	.162E-01	.574E-02	.212E-01	-.B93E-01	.405E-01
C5	.144E-01	.157E-01	.554E-02	.284E-01	-.230E-01	.514E-01
C6	.188E-01	.132E-01	.465E-02	.435E-01	.619E-02	.373E-01
C7	-.277E-03	.478E-02	.169E-02	.716E-02	-.545E-02	.126E-01

TITLE- Y26SIC

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00220	-.02945	-.01178	.00601	.00270	-.00196	-.00429	King
2#	.00214	-.01743	-.02125	-.00883	.02256	.03414	.00130	Swear
3#	.00650	-.01883	-.02278	-.01836	.01743	.02534	.00348	Cooper
4#	-.00174	-.02158	-.02964	.02332	.00991	.01569	-.00175	Brad
5#	-.00881	-.0.964	-.02429	-.01274	.01524	.00833	-.00166	Stovall
6#	-.00024	-.03732	-.03768	-.00119	.01335	.01240	-.00047	Dalbow
7#	.00117	-.01995	-.03979	-.01150	.01526	.01643	-.00163	Zechman
8#	.00329	-.03695	-.04226	.01075	.02075	.00354	.00202	Quimby

34>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.137E-04	.454E-02	.161E-02	.650E-02	-.881E-02	.153E-01
C2	-.251E-01	.824E-02	.291E-02	-.174E-01	-.373E-01	.199E-01
C3	-.287E-01	.106E-01	.374E-02	-.118E-01	-.423E-01	.305E-01
C4	-.157E-02	.141E-01	.498E-02	.233E-01	-.184E-01	.417E-01
C5	.146E-01	.627E-02	.222E-02	.226E-01	.270E-02	.199E-01
C6	.142E-0[illegible]	.116E-01	.410E-02	.341E-01	-.196E-02	.361E-01
C7	-.375E-03	.250E-02	.885E-03	.348E-02	-.429E-02	.777E-02

TITLE- Y9SUC

	C1	P C2	(C3	C4	C5	C6	C7	
1#	-.00024	.01939	.02675	.00662	-.04443	-.03093	-.00122	King
2#	-.00071	.01647	.02316	.01050	-.04011	-.02746	-.00071	Swear
3#	-.00023	.01860	.02604	.00558	-.04161	-.02999	-.00302	Cooper
4#	-.00065	.01765	.02659	.00610	-.03858	-.02594	-.00065	Brad
5#	-.00119	.01548	.02239	.00476	-.04073	-.02477	-.00190	Stovall
6#	.00047	.01884	.02695	.00381	-.03816	-.02957	-.00381	Dalbow
7#	.00000	.01761	.02958	.00727	-.03991	-.02864	-.00305	Zechman
8#	.00000	.01807	.02207	.00258	-.03733	-.02700	-.00258	Quimby

30>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.319E-03	.516E-03	.182E-03	.470E-03	-.119E-02	.166E-02
C2	.178E-01	.128E-02	.454E-03	.194E-01	.155E-01	.391E-02
C3	.254E-01	.264E-02	.932E-03	.296E-01	.221E-01	.751E-02
C4	.590E-02	.240E-02	.849E-03	.105E-01	.258E-02	.792E-02
C5	-.401E-01	.224E-02	.793E-03	-.373E-01	-.444E-01	.710E-02
C6	-.280E-01	.212E-02	.749E-03	-.248E-01	-.309E-01	.616E-02
C7	-.212E-02	.118E-02	.417E-03	-.650E-03	-.381E-02	.316E-02

TITLE- Y26SUC

	C1	C2	C3	C4	C5	C6	C7	
1#	.00000	.00662	.00932	.00220	-.01546	-.01080	-.00049	King
2#	-.00023	.01695	.02292	.00931	-.04179	-.02817	-.00119	Swear
3#	.00000	.01999	.02557	.00488	-.04557	-.03185	-.00209	Cooper
4#	-.00065	.01962	.02746	.00457	-.03902	-.02725	-.00218	Brad
5#	-.00119	.01905	.02763	.01286	-.04549	-.02906	-.00357	Stovall
6#	-.00023	.01884	.02671	.00190	-.04793	-.03243	-.00119	Dalbow
7#	-.00234	.01995	.02723	.00633	-.04085	-.02958	-.00164	Zechman
8#	.00075	.01797	.02353	.00315	-.04049	-.02910	-.00253	Quimby

3>ELEMENY-TARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.486E-03	.933E-03	.330E-03	.750E-03	-.234E-02	.309E-02
C2	.174E-01	.447E-02	.158E-02	.200E-01	.662E-02	.134E-01
C3	.238E-01	.612E-02	.216E-02	.276E-01	.932E-02	.183E-01
C4	.565E-02	.378E-02	.134E-02	.129E-01	.190E-02	.110E-01
C5	-.396E-01	.102E-01	.361E-02	-.155E-01	-.479E-01	.325E-01
C6	-.273E-01	.688E-02	.243E-02	-.108E-01	-.324E-01	.216E-01
C7	-.186E-02	.953E-03	.337E-03	-.490E-03	-.357E-02	.308E-02

TITLE- Y9STC

	C1	C2	C3	C4	C5	C6	C7	
1#	.00196	-.06274	-.08101	-.04173	.06235	.04504	-.01570	King
2#	.00382	-.0867[illegible]	-.08238	-.00692	.05348	.04644	-.00071	Swear
3#	.00069	-.0690	-.05952	-.01302	.06160	.04580	.00023	Cooper
4#	-.00501	-.09090	-.08916	.02659	.03455	.01765	-.00566	Brad
5#	.00071	-.06800	-.06788	-.00262	-.04573	.04859	.01357	Stovall
6#	-.00071	-.04865	-.06105	-.05175	.07035	.04722	.00262	Dalbow
7#	.00070	-.06856	-.06903	.00070	.05306	.04249	-.00469	Zechman
8#	.00075	-.06934	-.06099	-.02455	.06428	.03658	-.00354	Quimby

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.364E-03	.254E-02	.897E-03	.382E-02	-.501E-02	.883E-02
C2	-.706E-01	.133E-01	.469E-02	-.486E-01	-.909E-01	.422E-01
C3	-.714E-01	.114E-01	.402E-02	-.595E-01	-.892E-01	.296E-01
C4	-.142E-01	.249E-01	.881E-02	.266E-01	-.518E-01	.783E-01
C5	.442E-01	.379E-01	.134E-01	.703E-01	-.457E-01	.116
C6	.412E-01	.102E-01	.362E-02	.486E-01	.177E-01	.309E-01
C7	-.174E-02	.829E-02	.293E-02	.136E-01	-.157E-01	.293E-01

TITLE- Y26STC

	C1	C2	C3	C4	C5	C6	C7	
1#	.00551	-.06972	-.08175	-.02283	.04283	.04173	-.00589	King
2#	-.00286	-.09599	-.07641	-.00286	.05121	.04346	-.00095	Swear
3#	-.00093	-.07091	-.06393	-.02859	.06231	.04452	-.00023	Cooper
4#	-.00228	-.08599	-.10561	.03095	.04578	.01503	.00283	Brad
5#	.00262	-.06371	-.07240	-.03954	.05621	.04251	.00595	Stovall
6#	.00202	-.06177	-.07452	-.04733	.08227	.04555	-.00297	Dalbow
7#	-.00516	-.07924	-.08734	.01725	.05564	.03146	-.00633	Zechman
8#	-.00556	-.08858	-.08529	-.02416	.05046	.02353	-.01062	Quimby

7>ELEMENTAY-RY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.830E-03	.392E-02	.139E-02	.551E-02	-.556E-02	.111E-01
C2	-.770E-01	.124E-01	.439E-02	-.618E-01	-.960E-01	.342E-01
C3	-.809E-01	.125E-01	.442E-02	-.639E-01	-.106	.417E-01
C4	-.146E-01	.275E-01	.971E-02	.309E-01	-.473E-01	.783E-01
C5	.558E-01	.123E-01	.435E-02	.823E-01	.428E-01	.394E-01
C6	.360E-01	.114E-01	.403E-02	.456E-01	.150E-01	.305E-01
C7	-.228E-02	.534E-02	.189E-02	.595E-02	-.106E-01	.166E-01

TITLE- Y9SIN

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00270	-.02013	-.00859	-.00392	.02013	.00343	.00073	King
2#	.00119	-.01910	-.02889	-.02173	.02925	.04465	-.00310	Swear
3#	.00395	-.01790	-.03022	-.01092	.02325	.02301	.00255	Cooper
4#	.00261	-.01177	-.03597	-.01046	.02158	.02376	-.00392	Brad
5#	.00142	-.01834	-.01476	-.02048	.02417	.00643	-.00857	Stovall
6#	.00405	-.02647	-.02289	-.01120	.01454	.00930	.00524	Dalbow
7#	.00140	-.02606	-.02864	-.01761	.02183	.01103	-.00140	Zechman
8#	.00455	-.02758	-.02758	-.00025	.02075	.00101	.00253	Quimby

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.206E-02	.234E-02	.827E-03	.455E-02	-.270E-02	.725E-02
C2	-.209E-01	.541E-02	.191E-02	-.118E-01	-.276E-01	.158E-01
C3	-.247E-01	.895E-02	.316E-02	-.859E-02	-.360E-01	.274E-01
C4	-.121E-01	.761E-02	.269E-02	-.250E-03	-.217E-01	.215E-01
C5	.219E-01	.414E-02	.146E-02	.293E-01	.145E-01	.147E-01
C6	.153E-01	.145E-01	.512E-02	.447E-01	.101E-02	.436E-01
C7	-.743E-03	.442E-02	.156E-02	.524E-02	-.857E-02	.138E-01

TITLE- Y26SIN

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00343	-.00932	-.00453	.00957	.01227	-.00343	-.00147	King
2#	-.00049	-.01350	-.02552	-.0 196	.02111	.02808	-.00478	Swear
3#	.00441	-.01069	-.02511	-.01441	.01697	.01976	.00139	Cooper
4#	-.00131	-.01635	-.03531	-.00806	.02208	.01765	-.00457	Brad
5#	.00595	-.02048	-.01845	-.00476	.01167	.00225	-.00571	Stovall
6#	.00143	-.03672	-.03076	-.00357	.00810	.00787	.00285	Dalbow
7#	.00305	-.02254	-.03310	-.01643	.00997	.01361	.00070	Zechman
8#	.00354	-.03264	-.03644	-.00531	.00986	-.00177	-.00177	Quimby

7>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.164E-02	.318E-02	.112E-02	.595E-02	-.343E-02	.938E-02
C2	-.203E-01	.100E-01(	.354E-02	-.932E-02	-.367E-01	.274E-01
C3	-.262E-01	.106E-01	.375E-02	-.453E-02	-.364E-01	.319E-01
C4	-.812E-02	.966E-02	.341E-02	.957E-02	-.220E-01	.315E-01
C5	.140E-01	.536E-02	.190E-02	.221E-01	.810E-02	.140E-01
C6	.105E-01	.112E-01	.395E-02	.281E-01	-.343E-02	.315E-01
C7	-.167E-02	.316E-02	.112E-02	.285E-02	-.571E-02	.856E-02

TITLE- Y9SUN

	C1	C2	C3	C4	C5	C6	C7	
1#	.00073	.01546	.01669	.00761	-.03707	-.02970	-.00270	King
2#	.00071	.01623	.01958	.00835	-.03271	-.02483	-.00191	Swear
3#	.00069	.01557	.01929	.00976	-.03510	-.02418	-.00139	Cooper
4#	.00000	.01504	.01722	.00610	-.02812	-.01940	-.00043	Brad
5#	-.00071	.01286	.01643	.00571	-.03048	-.02167	-.00357	Stovall
6#	.00000	.01979	.02504	.00262	-.04269	-.02766	-.00381	Dalbow
7#	.00211	.01620	.02207	.00821	-.03545	-.02441	-.00117	Zechman
8#	.00278	.01442	.01797	.00455	-.0308?	-.02075	-.00177	Quimby

7>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.789E-03	@.115E-02	.406E-03	.278E-02	-.710E-03	.349E-02
C2	.157E-01	.198E-02	.700E-03	.198E-01	.129E-01	.693E-02
C3	.193E-01	.297E-02	.105E-02	.250E-01	.164E-01	.861E-02
C4	.661E-02	.232E-02	.821E-03	.976E-02	.262E-02	.714E-02
C5	-.341E-01	.458E-02	.162E-02	-.281E-01	-.427E-01	.146E-01
C6	-.241E-01	.346E-02	.122E-02	-.194E-01	-.297E-01	.103E-01
C7	-.209E-02	.118E-02	.417E-03	-.430E-03	-.381E-02	.338E-02

TITLE- Y26SUN

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00024	.01743	.02283	.00540	-.04222	-.02994	-.00319	King
2#	.00122	.01693	.02173	.00668	-.03796	-.02817	-.00238	Swear
3#	.00046	.01534	.01929	.00558	-.03650	-.02940	-.00162	Cooper
4#	-.00065	.01635	.01983	.00479	-.03139	-.02354	-.[illegible]65	Brad
5#	-.00095	.01715	.02119	.00690	-.03453	-.02477	-.0[illegible]	Stovall
6#	-.00071	.01860	.02528	.00321	-.04388	-.03124	-.001[illegible]	Dalbow
7#	-.00023	.01526	.02230	.00845	-.03522	-.02488	-.00117	Zechman
8#	.00025	.01493	.01999	.00379	-.03644	-.02303	-.00075	Quimby

16>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.106E-03	.718E-03	.254E-03	.122E-02	-.950E-03	.217E-02
C2	.165E-01	.127E-02	.448E-03	.186E-01	.149E-01	.367E-02
C3	.216E-01	.196E-02	.691E-03	.253E-01	.193E-01	.599E-02
C4	.560E-02	.172E-02	.607E-03	.845E-02	.321E-02	.524E-02
C5	-.373E-01	.407E-02	.144E-02	-.314E-01	-.439E-01	.125E-01
C6	-.269E-01	.318E-02	.112E-02	-.230E-01	-.312E-01	.821E-02
C7	-.173E-02	.968E-03	.342E-03	-.650E-03	-.319E-02	.254E-02

TITLE- Y9STN

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00441	-.06849	-.07021	-.01669	.05376	.04639	-.00392	King
2#	.00298	-.06483	-.07104	-.00597	.06184	.05277	.00143	Swear
3#	.00000	-.05835	-.06184	-.01604	.05928	.05115	.00302	Cooper
4#	-.00763	-.08349	-.07804	.01046	.04992	.03052	-.00359	Brad
5#	.00214	-.07407	-.09682	.00178	.05359	.04168	.00357	Stovall
6#	.00119	-.06511	-.06105	-.02241	.05437	.04221	.00000	Dalbow
7#	-.00187	-.06550	-.06550	-.01220	.06339	.03874	.00140	Zechman
8#	.00075	-.07959	-.08731	.00000	.05213	.02948	.00177	Quimby

12>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.856E-03	.360E-02	.127E-02	.298E-02	-.763E-02	.106E-01
C2	-.699E-01	.845E-02	.299E-02	-.584E-01	-.835E-01	.251E-01
C3	-.740E-01	.127E-01	.448E-02	-.611E-01	-.968E-01	.358E-01
C4	-.763E-02	.111E-01	.394E-02	.105E-01	-.224E-01	.329E-01
C5	.560E-01	.485E-02	.172E-02	.634E-01	.499E-01	.135E-01
C6	.416E-01	.860E-02	.304E-02	.528E-01	.295E-01	.233E-01
C7	.460E-03	.282E-02	.996E-03	.357E-02	-.392E-02	.749E-02

TITLE- Y26STN

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00073	-.06873	-.07131	-.01031	.05302	.04787	-.00196	King
2#	.00298	-.07509	-.07056	-.00764	.05038	.04584	-.00071	Swear
3#	-.00058	-.05905	-.06510	-.02185	.05544	.04859	.00348	Cooper
4#	.00446	-.07608	-.08937	.00457	.04621	.02910	.00305	Brad
5#	.00023	-.07640	-.08836	-.00166	.04549	.03155	-.00262	Stovall
6#	.00047	-.02241	-.02098	-.00787	.01884	.01454	.00000	Dalbow
7#	.00375	-.07067	-.07231	-.02030	.05446	.03639	-.00305	Zechman
8#	-.00202	-.08352	-.07668	-.00202	.05162	.02340	-.00303	Quimby

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.107E-02	.236E-02	.833E-03	.446E-02	-.202E-02	.648E-02
C2	-.665E-01	.192E-01	.678E-02	-.224E-01	-.835E-01	.611E-01
C3	-.693E-01	.213E-01	.754E-02	-.210E-01	-.894E-01	.684E-01
C4	-.839E-02	.911E-02	.322E-02	.457E-02	-.218E-01	.264E-01
C5	.469E-01	.119E-01	.421E-02	.554E-01	.188E-01	.366E-01
C6	.347E-01	.124E-01	.437E-02	.486E-01	.145E-01	.341E-01
C7	-.605E-03	.262E-02	.928E-03	.348E-02	-.305E-02	.653E-02

TABLE I-6

STATISTICAL ANALYSIS OF PITCHING MOMENT COEFFICIENT AS A FUNCTION OF YAW ANGLE FOR AVAILABLE HUMAN SUBJECT DATA

$C_{M_{L\sqrt{WL}}}$

TITLE- M9SIC

	C1	C2	C3	C4	C5	C6	C7	
1#	.01984	.01726	.01072	.01301	.01661	.01890	.01980	King
2#	.02193	.01718	.01023	.00846	.01204	.02703	.02715	Swear
3#	.02263	.01982	.01295	.01069	.01514	.02017	.02181	Cooper
4#	.02247	.01802	.01290	.01078	.01353	.01929	.02145	Brad
5#	.01481	.01312	.01022	.00893	.01598	.01718	.01803	Stovall
6#	.01615	.01222	.00886	.01119	.01709	.02345	.02434	Dalbow
7#	.01985	.01552	.00977	.01052	.01540	.01807	.02017	Zeckman
8#	.02042	.01752	.01146	.01444	.01875	.02334	.02473	Quimby
9#	.02277	.01869	.01210	.01091	.01443	.01769	.02007	Moore
10#	.01940	.01927	.01385	.01130	.01619	.01887	.02355	Ohm
11#	.01860	.01618	.01081	.01048	.01238	.01672	.02227	Wagoner

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VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.199E-01	.262E-02	.790E-03	.228E-01	.148E-01	.796E-02
C2	.168E-01	.240E-02	.724E-03	.198E-01	.122E-01	.760E-02
C3	.113E-01	.154E-02	.463E-03	.138E-01	.886E-02	.499E-02
C4	.110E-01	.165E-02	.499E-03	.144E-01	.846E-02	.598E-02
C5	.152E-01	.203E-02	.611E-03	.187E-01	.120E-01	.671E-02
C6	.201E-01	.321E-02	.969E-03	.270E-01	.167E-01	.103E-01
C7	.221E-01	.264E-02	.796E-03	.272E-01	.180E-01	.912E-02

TITLE- M26SIC

	C1	C2	C3	C4	C5	C6	C7	
1#	.02037	.01747	.01141	.01293	.01620	.01925	.01992	King
2#	.02298	.01880	.01155	.00926	.01242	.02966	.02972	Swear
3#	.02368	.02126	.01416	.01283	.01443	.01880	.02114	Cooper
4#	.02381	.02072	.01339	.01293	.01424	.02233	.02102	Brad
5#	.01871	.01716	.01038	.01078	.01469	.01783	.01867	Stovall
6#	.02004	.01593	.01164	.01257	.01705	.02372	.02059	Dalbow
7#	.01917	.01807	.01242	.01064	.01453	.01880	.02027	Zeckman
8#	.02333	.02095	.01397	.01511	.01800	.02262	.02330	Quimby
9#	.02278	.01978	.01385	.01274	.01518	.01782	.01856	Moore
10#	.02124	.01960	.01413	.01350	.01526	.01874	.02048	Ohm
11#	.01880	.01839	.01186	.01245	.01288	.01870	.02103	Wagoner

SPELEMENT2-PART

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.214E-01	.203E-02	.611E-03	.238E-01	.187E-01	.510E-02
C2	.189E-01	.171E-02	.515E-03	.213E-01	.159E-01	.533E-02
C3	.126E-01	.133E-02	.402E-03	.142E-01	.104E-01	.378E-02
C4	.123E-01	.158E-02	.477E-03	.151E-01	.926E-02	.585E-02
C5	.150E-01	.165E-02	.496E-03	.180E-01	.124E-01	.558E-02
C6	.208E-01	.360E-02	.108E-02	.297E-01	.178E-01	.118E-01
C7	.213E-01	.306E-02	.923E-03	.297E-01	.186E-01	.112E-01

TITLE- M9SUC

	C1	C2	C3	C4	C5	C6	C7	
1#	.00835	.00880	.01174	.01309	.01342	.00970	.00736	King
2#	.00884	.00834	.01145	.01360	.01255	.01069	.00825	Swear
3#	.00737	.00823	.01174	.01244	.01307	.01092	.00712	Cooper
4#	.00788	.00908	.01463	.01678	.01318	.01049	.00809	Brad
5#	.00787	.00893	.01147	.01348	.01332	.01119	.00801	Stovall
6#	.00877	.00908	.01074	.01280	.01231	.01034	.00864	Dalbow
7#	.00865	.00878	.01165	.01400	.01445	.01006	.00663	Zeckman
8#	.00739	.00775	.01052	.01175	.01144	.00999	.00607	Quimby
9#	.00803	.00853	.01160	.01430	.01486	.01219	.00934	Moore

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VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.813E-02	.559E-03	.186E-03	.884E-02	.737E-02	.147E-02
C2	.861E-02	.443E-03	.148E-03	.908E-02	.775E-02	.133E-02
C3	.117E-01	.117E-02	.391E-03	.146E-01	.105E-01	.411E-02
C4	.136E-01	.143E-02	.478E-03	.168E-01	.118E-01	.503E-02
C5	.132E-01	.104E-02	.348E-03	.149E-01	.114E-01	.342E-02
C6	.106E-01	.753E-03	.251E-03	.122E-01	.970E-02	.249E-02
C7	.772E-02	.102E-02	.341E-03	.934E-02	.607E-02	.327E-02

TITLE- M26SUC

	C1	C2	C3	C4	C5	C6	C7	
1#	.00847	.00982	.01346	.01444	.01415	.01076	.00799	King
2#	.00884	.00888	.01227	.01427	.01288	.01033	.00871	Swear
3#	.00753	.00854	.01272	.01369	.01356	.01104	.00765	Cooper
4#	.00802	.00972	.01265	.01473	.01438	.01240	.00989	Brad
5#	.00773	.00909	.01173	.01553	.01598	.01237	.00917	Stovall
6#	.00864	.01016	.01177	.01334	.01105	.00935	.00926	Dalbow
7#	.00783	.00787	.01197	.01499	.01474	.01103	.00774	Zeckman
8#	.00726	.00876	.01263	.01364	.01276	.01021	.00647	Quimby
9#	.00797	.00864	.01231	.01537	.01507	.01198	.01020	Moore

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VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.803E-02	.524E-03	.175E-03	.884E-02	.726E-02	.158E-02
C2	.905E-02	.725E-03	.242E-03	.102E-01	.787E-02	.229E-02
C3	.124E-01	.547E-03	.182E-03	.135E-01	.117E-01	.173E-02
C4	.144E-01	.781E-03	.260E-03	.155E-01	.133E-01	.219E-02
C5	.139E-01	.147E-02	.489E-03	.160E-01	.111E-01	.493E-02
C6	.111E-01	.104E-02	.346E-03	.124E-01	.935E-02	.305E-02
C7	.855E-02	.121E-02	.402E-03	.102E-01	.647E-02	.373E-02

TITLE- M9STC

	C1	C2	C3	C4	C5	C6	C7	
1#	.02109	.02099	.01084	.00892	.01109	.01552	.01869	King
2#	.01911	.01806	.01036	.00762	.00918	.01204	.01566	Swear
3#	.02022	.01734	.01092	.00847	.01108	.01283	.01599	Cooper
4#	.02395	.01906	.01141	.00979	.00931	.00959	.01323	Brad
5#	.02557	.02122	.01348	.00909	.01195	.01467	.01869	Stovall
6#	.02624	.02228	.01510	.00810	.00982	.01257	.01687	Dalbow
7#	.02886	.02269	.01292	.01019	.01089	.01540	.02072	Zeckman
8#	.03243	.02799	.01818	.01149	.01637	.01888	.02849	Quimby
9#	.02331	.02018	.01396	.00820	.01315	.01771	.01894	Novotney
10#	.02212	.01968	.01361	.00938	.01164	.01569	.02053	Garner
11#	.02432	.02089	.01526	.01070	.01431	.01640	.01830	Wilcox

31>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.243E-01	.390E-02	.118E-02	.324E-01	.191E-01	.133E-01
C2	.209E-01	.286E-02	.861E-03	.280E-01	.173E-01	.107E-01
C3	.133E-01	.236E-02	.711E-03	.182E-01	.104E-01	.782E-02
C4	.927E-02	.119E-02	.358E-03	.115E-01	.762E-02	.387E-02
C5	.117E-01	.219E-02	.659E-03	.164E-01	.918E-02	.719E-02
C6	.147E-01	.270E-02	.813E-03	.189E-01	.959E-02	.929E-02
C7	.167E-01	.392E-02	.118E-02	.285E-01	.132E-01	.153E-01

TITLE- M26STC

	C1	C2	C3	C4	C5	C6	C7	
1#	.02074	.01998	.01282	.00920	.01225	.01632	.01878	King
2#	.01808	.01395	.01143	.00880	.00905	.01181	.01555	Swear
3#	.01810	.01240	.01155	.00911	.01018	.01143	.01353	Cooper
4#	.02164	.01791	.01084	.00936	.00936	.00860	.00950	Brad
5#	.01903	.01762	.01119	.00974	.01145	.01356	.01722	Stovall
6#	.02291	.01897	.01172	.00949	.01043	.01347	.01709	Dalbow
7#	.02495	.02163	.01317	.00982	.01199	.01457	.02012	Zeckman
8#	.02900	.02685	.01787	.01109	.01554	.01708	.02333	Quimby
9#	.02539	.02113	.01435	.01100	.01238	.01339	.01856	Novotney
10#	.02160	.01791	.01285	.01111	.01267	.01553	.02113	Garner
11#	.02502	.02227	.01596	.00986	.01329	.01609	.01936	Wilcox

19>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.224E-01	.344E-02	.104E-02	.290E-01	.181E-01	.109E-01
C2	.191E-01	.397E-02	.120E-02	.268E-01	.124E-01	.145E-01
C3	.131E-01	.220E-02	.664E-03	.179E-01	.108E-01	.703E-02
C4	.987E-02	.831E-03	.250E-03	.111E-01	.880E-02	.231E-02
C5	.117E-01	.189E-02	.568E-03	.155E-01	.905E-02	.649E-02
C6	.138E-01	.251E-02	.756E-03	.171E-01	.860E-02	.848E-02
C7	.177E-01	.379E-02	.114E-02	.233E-01	.950E-02	.138E-01

TITLE- M9SIN

	C1	C2	C3	C4	C5	C6	C7	
1#	.01792	.01452	.00974	.01162	.01440	.01465	.01579	King
2#	.01659	.01301	.00905	.00728	.01191	.02113	.02361	Swear
3#	.01869	.01502	.01092	.00983	.01365	.01802	.01923	Cooper
4#	.01936	.01678	.01039	.01060	.01417	.02035	.02000	Brad
5#	.01585	.01485	.00845	.00917	.01420	.01775	.01903	Stovall
6#	.01432	.01263	.00801	.01181	.01539	.01875	.01786	Dalbow
7#	.01462	.01246	.00932	.00870	.01321	.01669	.01811	Zeckman
8#	.02073	.01857	.01369	.01488	.01681	.01743	.02011	Quimby
9#	.01800	.01587	.01079	.00941	.01505	.01775	.01697	Moore
10#	.01480	.01454	.00936	.00864	.01585	.01621	.02103	Wagoner
11#	.01813	.01539	.01070	.00950	.01090	.01786	.01934	Ohm

51>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.172E-01	.210E-02	.634E-03	.207E-01	.143E-01	.641E-02
C2	.149E-01	.181E-02	.547E-03	.186E-01	.125E-01	.611E-02
C3	.100E-01	.155E-02	.466E-03	.137E-01	.801E-02	.568E-02
C4	.101E-01	.205E-02	.619E-03	.149E-01	.728E-02	.760E-02
C5	.141E-01	.171E-02	.514E-03	.168E-01	.109E-01	.591E-02
C6	.179E-01	.180E-02	.542E-03	.211E-01	.147E-01	.648E-02
C7	.192E-01	.210E-02	.632E-03	.236E-01	.158E-01	.782E-02

TITLE- M26SUN

	C1	C2	C3	C4	C5	C6	C7	
1#	.00749	.00761	.01129	.01327	.01272	.01010	.01117	King
2#	.00775	.00766	.01145	.01269	.01246	.01107	.01023	Swear
3#	.00722	.00722	.01069	.01182	.01135	.01067	.00827	Cooper
4#	.00671	.00876	.01018	.01176	.01237	.01074	.00919	Brad
5#	.00676	.00821	.01378	.01247	.01268	.01244	.00869	Stovall
6#	.00814	.00904	.01248	.01546	.01449	.01242	.00819	Dalbow
7#	.00708	.00712	.00958	.01172	.01259	.01043	.01033	Zeckman
8#	.00757	.00783	.01032	.01162	.00937	.00959	.00867	Quimby
9#	.00666	.00803	.01392	.01565	.01424	.01285	.01044	Moore

7>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.729E-02	.488E-03	.163E-03	.814E-02	.671E-02	.143E-02
C2	.794E-02	.647E-03	.216E-03	.904E-02	.712E-02	.192E-02
C3	.115E-01	.156E-02	.521E-03	.139E-01	.958E-02	.434E-02
C4	.129E-01	.158E-02	.527E-03	.157E-01	.116E-01	.403E-02
C5	.125E-01	.151E-02	.503E-03	.145E-01	.937E-02	.512E-02
C6	.111E-01	.115E-02	.384E-03	.129E-01	.959E-02	.326E-02
C7	.946E-02	.109E-02	.364E-03	.112E-01	.819E-02	.298E-02

TITLE- M9STN

	C1	C2	C3	C4	C5	C6	C7	
1#	.01976	.01906	.01137	.00957	.01346	.01663	.01881	King
2#	.01574	.01574	.01284	.00846	.01103	.01425	.01861	Swear
3#	.02157	.01855	.01182	.00967	.01147	.01315	.01611	Cooper
4#	.01667	.01394	.00869	.00851	.01237	.01159	.01234	Brad
5#	.02306	.02060	.01356	.00825	.01032	.01550	.01863	Stovall
6#	.02318	.01812	.01146	.00899	.00882	.01383	.01835	Dalbow
7#	.02195	.01789	.01225	.00774	.01064	.01501	.01756	Zeckman
8#	.02673	.02409	.01307	.00898	.01210	.01674	.02407	Quimby
9#	.01979	.01783	.01272	.00937	.01107	.01634	.01784	Novotney
10#	.02642	.02215	.01453	.01030	.00973	.01425	.01651	Garner
11#	.02147	.01976	.01418	.00924	.01241	.01526	.01760	Wilcox

47>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.215E-01	.346E-02	.104E-02	.267E-01	.157E-01	.110E-01
C2	.189E-01	.280E-02	.845E-03	.241E-01	.139E-01	.102E-01
C3	.124E-01	.161E-02	.485E-03	.145E-01	.869E-02	.584E-02
C4	.901E-02	.731E-03	.220E-03	.103E-01	.774E-02	.256E-02
C5	.112E-01	.133E-02	.402E-03	.135E-01	.882E-02	.464E-02
C6	.148E-01	.157E-02	.475E-03	.167E-01	.116E-01	.515E-02
C7	.179E-01	.276E-02	.833E-03	.241E-01	.123E-01	.117E-01

TITLE- M26SIN

	C1	C2	C3	C4	C5	C6	C7	
1#	.01896	.01606	.01111	.01272	.01509	.01651	.01724	King
2#	.02139	.01705	.00989	.00838	.01271	.02088	.02387	Swear
3#	.02223	.01761	.01293	.01024	.01404	.01989	.02064	Cooper
4#	.02265	.01918	.01162	.01028	.01537	.02095	.01946	Brad
5#	.01785	.01561	.00962	.01127	.01264	.01758	.01795	Stovall
6#	.01839	.01553	.01020	.01257	.01647	.02112	.02090	Dalbov
7#	.01629	.01453	.01041	.01035	.01379	.01768	.01648	Zeckman
8#	.02180	.01993	.01457	.01476	.01690	.01987	.02044	Quimby
9#	.02028	.01928	.01279	.01196	.01483	.01774	.01726	Moore
10#	.01748	.01682	.01143	.01074	.01403	.01796	.02011	Wagoner
11#	.01894	.01744	.01125	.01016	.01378	.01763	.01839	Ohm

35>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.197E-01	.213E-02	.643E-03	.226E-01	.163E-01	.636E-02
C2	.172E-01	.173E-02	.521E-03	.199E-01	.145E-01	.540E-02
C3	.114E-01	.149E-02	.451E-03	.146E-01	.962E-02	.495E-02
C4	.112E-01	.171E-02	.515E-03	.148E-01	.838E-02	.638E-02
C5	.145E-01	.138E-02	.415E-03	.169E-01	.126E-01	.426E-02
C6	.189E-01	.167E-02	.502E-03	.211E-01	.165E-01	.461E-02
C7	.193E-01	.215E-02	.648E-03	.239E-01	.165E-01	.739E-02

TITLE- M9SUN

	C1	C2	C3	C4	C5	C6	C7	
1#	.00790	.00761	.01006	.01117	.01190	.01006	.00930	King
2#	.00800	.00699	.00973	.01149	.01111	.01090	.00882	Swear
3#	.00701	.00616	.00928	.01069	.01151	.01077	.00913	Cooper
4#	.00643	.00827	.00897	.01092	.01174	.01074	.00943	Brad
5#	.00712	.00761	.01010	.01143	.01107	.01159	.00926	Stovall
6#	.00792	.00729	.01070	.01316	.01284	.01034	.00729	Dalbow
7#	.00787	.00658	.00969	.01097	.01201	.00911	.00899	Zeckman
8#	.00761	.00665	.00981	.01052	.00999	.01144	.00920	Quimby
9#	.00721	.00727	.01091	.01210	.01273	.01173	.01003	Moore

23>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.745E-02	.539E-03	.180E-03	.800E-02	.643E-02	.157E-02
C2	.716E-02	.641E-03	.214E-03	.827E-02	.616E-02	.211E-02
C3	.992E-02	.618E-03	.206E-03	.109E-01	.897E-02	.194E-02
C4	.114E-01	.817E-03	.272E-03	.132E-01	.105E-01	.264E-02
C5	.117E-01	.879E-03	.293E-03	.128E-01	.999E-02	.285E-02
C6	.107E-01	.829E-03	.276E-03	.117E-01	.911E-02	.262E-02
C7	.905E-02	.741E-03	.247E-03	.100E-01	.729E-02	.274E-02

TITLE- M26STN

	C1	C2	C3	C4	C5	C6	C7	
1#	.02258	.02049	.01419	.01086	.01339	.01685	.01980	King
2#	.02067	.01957	.01372	.00939	.01229	.01393	.01701	Swear
3#	.02072	.01938	.01459	.01092	.01225	.01353	.01590	Cooper
4#	.01816	.01719	.01114	.00890	.00947	.00975	.01160	Brad
5#	.02092	.01859	.01260	.00869	.01197	.01652	.02090	Stovall
6#	.02193	.01700	.01230	.01056	.01087	.01419	.01694	Dalbow
7#	.02385	.01886	.01110	.00787	.01106	.01337	.01731	Zeckman
8#	.02437	.02227	.01395	.01065	.01518	.01663	.02513	Quimby
9#	.02107	.01812	.01242	.01093	.01064	.01587	.01803	Novotney
10#	.02169	.01917	.01475	.01060	.01243	.01560	.01939	Garner
11#	.02311	.02116	.01423	.00983	.01348	.01523	.02033	Wilcox

15>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.217E-01	.174E-02	.523E-03	.244E-01	.182E-01	.621E-02
C2	.193E-01	.160E-02	.482E-03	.223E-01	.170E-01	.527E-02
C3	.132E-01	.133E-02	.400E-03	.147E-01	.111E-01	.365E-02
C4	.993E-02	.107E-02	.321E-03	.109E-01	.787E-02	.306E-02
C5	.121E-01	.156E-02	.470E-03	.152E-01	.947E-02	.571E-02
C6	.147E-01	.207E-02	.624E-03	.168E-01	.975E-02	.710E-02
C7	.184E-01	.341E-02	.103E-02	.251E-01	.116E-01	.135E-01

TABLE I-7

STATISTICAL ANALYSIS OF YAWING MOMENT COEFFICIENT AS A FUNCTION OF YAW ANGLE FOR AVAILABLE HUMAN SUBJECT DATA

$C_{N_{L\sqrt{WL}}}$

TITLE- N9SIC

	C1	C2	C3	C4	C5	C6	C7	
1#	.00090	-.00708	-.01072	-.01264	-.01256	-.00863	-.00061	King
2#	-.00017	-.01031	-.01405	-.01388	-.01147	-.00464	.00000	Swear
3#	-.00113	-.00955	-.01361	-.01267	-.00979	-.00507	.00070	Cooper
4#	.00169	-.00759	-.01159	-.01258	-.01060	-.00788	-.00261	Brad
5#	.00000	-.00832	-.01094	-.01235	-.01158	-.00808	00072	Stovall
6#	.00074	-.00823	-.01284	-.01468	-.01441	-.00958	- 00195	Dalbow
7#	-.00012	-.00975	-.01246	-.01345	-.01279	-.00898	-.00170	Zeckman
8#	.00136	-.00768	-.01320	-.01430	-.01320	-.00924	-.00020	Quimby

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.409E-03	.929E-03	.329E-03	.169E-02	-.113E-02	.282E-02
C2	-.856E-02	.117E-02	.413E-03	-.708E-02	-.103E-01	.323E-02
C3	-.124E-01	.123E-02	.436E-03	-.107E-01	-.140E-01	.333E-02
C4	-.133E-01	.888E-03	.314E-03	-.124E-01	-.147E-01	.233E-02
C5	-.121E-01	.149E-02	.526E-03	-.979E-02	-.144E-01	.462E-02
C6	-.776E-02	.188E-02	.666E-03	-.464E-02	-.958E-02	.494E-02
C7	-.886E-03	.111E-02	.393E-03	.700E-03	-.261E-02	.331E-02

TITLE- N26SIC

	C1	C2	C3	C4	C5	C6	C7	
1#	5.70000E-04	-.00560	-.01149	-.01362	.01493	-.01149	.00159	King
2#	6.00000E-04	-.01059	-.01463	-.01478	-.01173	-.00737	-.00088	Swear
3#	-2.30000E-04	-.00920	-.01382	-.01505	-.01158	-.00749	-.00033	Cooper
4#	1.77000E-03	-.00763	-.01219	-.01410	-.01346	-.01049	-.00198	Brad
5#	1.00000E-03	-.00792	-.01130	-.01271	-.01412	-.00977	-.00179	Stovall
6#	1.36000E-03	-.00770	-.01275	-.01615	-.01571	-.01235	-.00107	Dalbow
7#	-5.00000E-04	-.00919	-.01316	-.01509	-.01420	-.01027	-.00124	Zeckman
8#	4.00000E-05	-.00750	-.01267	-.01630	-.01390	-.01148	-.00116	Quimby

46>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.576E-03	.785E-03	.278E-03	.177E-02	-.500E-03	.227E-02
C2	-.817E-02	.149E-02	.528E-03	-.560E-02	-.106E-01	.499E-02
C3	-.128E-01	.112E-02	.398E-03	-.113E-01	-.146E-01	.333E-02
C4	-.147E-01	.122E-02	.431E-03	-.127E-01	-.163E-01	.359E-02
C5	-.997E-02	.102E-01	.359E-02	.149E-01	-.157E-01	.306E-01
C6	-.101E-01	.183E-02	.647E-03	-.737E-02	-.124E-01	.498E-02
C7	-.858E-03	.111E-02	.394E-03	.159E-02	-.198E-02	.357E-02

TITLE- N9SUC

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00016	.00376	.00556	4.00000E-05	-.00560	-.00303	.00098	King
2#	-.00021	.00296	.00447	7.30000E-04	-.00391	-.00118	.00060	Swear
3#	-.00078	.00279	.00343	-4.70000E-04	-.00632	-.00179	.00000	Cooper
4#	-.00010	.00343	.00586	3.48000E-03	-.00258	-.00116	.00028	Brad
5#	-.00034	.00163	.00454	-2.4 000E-04	-.00330	-.00104	.00092	Stovall
6#	-.00040	.00268	.00430	.00000E+00	-.00421	-.00268	.00098	Dalbow
7#	-.00054	.00383	.00559	8.30000E-04	-.00401	-.00228	/00033	Zeckman
8#	-.00132	.00369	.00361	-1.82000E-03	-.00726	-.00374	-.00013	Quimby

27>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.544E-03	.418E-03	.148E-03	-.100E-03	-.132E-02	.122E-02
C2	.310E-02	.744E-03	.263E-03	.383E-02	.163E-02	.220E-02
C3	.467E-02	.919E-03	.325E-03	.586E-02	.343E-02	.243E-02
C4	.319E-03	.152E-02	.536E-03	.348E-02	-.182E-02	.530E-02
C5	-.465E-02	.159E-02	.563E-03	-.258E-02	-.726E-02	.468E-02
C6	-.211E-02	.991E-03	.350E-03	-.104E-02	-.374E-02	.270E-02
C7	.495E-03	.443E-03	.156E-03	.980E-03	-.130E-03	.111E-02

TITLE- N26SUC

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00018	.00419	.00562	-.00035	-.00654	-.00339	.00090	King
2#	-.00032	.00324	.00490	.00137	-.00389	-.00125	.00039	Swear
3#	-.00086	.00289	.00423	-.00039	-.00684	-.00250	.00016	Cooper
4#	-.00026	.00307	.00609	.00212	-.00366	-.00231	-.00085	Brad
5#	-.00100	.00253	.00591	.00113	-.00466	-.00209	.00062	Stovall
6#	-.00022	.00318	.00470	-.00063	-.00702	-.00349	.00107	Dalbow
7#	.00099	.00360	.00608	.00062	-.00505	-.00288	-.00060	Zeckman
8#	-.00053	.00299	.00257	-.00325	-.00897	-.00457	-.00035	Quimby

7>ELEMENTAY-RY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.298E-03	.603E-03	.213E-03	.990E-03	-.100E-02	.199E-02
C2	.321E-02	.500E-03	.177E-03	.419E-02	.253E 02	.166E-02
C3	.501E-02	.120E-02	.426E-03	.609E-02	.257E-02	.352E-02
C4	.775E-04	.166E-02	.586E-03	.212E-02	-.325E-02	.537E-02
C5	-.583E-02	.182E-02	.644E-03	-.366E-02	-.897E-02	.531E-02
C6	-.281E-02	.101E-02	.359E-03	-.125E-02	-.457E-02	.332E-02
C7	.167E-03	.707E-03	.250E-03	.107E-02	-.850E-03	.192E-02

TITLE- N9STC

	C1	C2	C3	C4	C5	C6	C7	
1#	2.60000E-04	-.00182	-.00329	.00221	.00736	.00536	-.00016	King
2#	8.20000E-04	-.00236	-.00236	.00292	.00756	.00541	-.00056	Swear
3#	-4.00000E-05	-.00222	-.00195	.00273	.00774	.00632	-.00027	Cooper
4#	-7.00000E-05	-.00291	-.00152	.00576	.00708	.00540	-.00071	Brad
5#	.00000E+00	-.00318	-.00310	.00229	.00776	.00571	-.00096	Stovall
6#	-2.20000E-04	-.00219	-.00309	.00125	.00942	.00678	-.00089	Dalbow
7#	-3.70000E-04	-.00323	-.00286	.00294	.00733	.00546	-.00083	Zeckman
8#	4.00000E-05	-.00268	-.00281	.00189	.00761	.00554	-.00061	Quimby

42>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.525E-04	.361E-03	.128E-03	.820E-03	-.370E-03	.119E-02
C2	-.257E-02	.508E-03	.180E-03	-.182E-02	-.323E-02	.141E-02
C3	-.262E-02	.623E-03	.220E-03	-.152E-02	-.329E-02	.177E-02
C4	.275E-02	.134E-02	.475E-03	.576E-02	.125E-02	.451E-02
C5	.773E-02	.719E-03	.254E-03	.942E-02	.708E-02	.234E-02
C6	.575E-02	.522E-03	.184E-03	.678E-02	.536E-02	.142E-02
C7	-.624E-03	.287E-03	.102E-03	-.160E-03	-.960E-03	.800E-03

TITLE- N26STC

	C1	C2	C3	C4	C5	C6	C7	
1#	.00055	-.00249	-.00233	.00360	.00777	.00544	-.00029	King
2#	.00094	-.00215	-.00155	.00324	.00735	.00597	-.00069	Swear
3#	-.00019	-.00175	-.00212	.00257	.00757	.00589	-.00019	Coopcr
4#	.00018	-.00178	-.00131	.00519	.00678	.00519	-.00109	Brad
5#	-.00024	-.00283	-.00356	.00060	.00788	.00615	-.00078	Stovall
6#	-.00022	-.00237	-.00318	.00215	.00864	.00600	-.00067	Dalbow
7#	-.00021	-.00290	-.00283	.00302	.00741	.00522	-.00058	Zeckman
8#	.00000	-.00262	-.00277	.00189	.00765	.00541	-.00101	Quimby

15>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.101E-03	.435E-03	.154E-03	.940E-03	-.240E-03	.118E-02
C2	-.236E-02	.439E-03	.155E-03	-.175E-02	-.290E-02	.115E-02
C3	-.246E-02	.779E-03	.275E-03	-.131E-02	-.356E-02	.225E-02
C4	.278E-02	.135E-02	.477E-03	.519E-02	.600E-03	.459E-02
C5	.763E-02	.529E-03	.187E-03	.864E-02	.678E-02	.186E-02
C6	.566E-02	.384E-03	.136E-03	.615E-02	.519E-02	.960E-03
C7	-.663E-03	.313E-03	.111E-03	-.190E-03	-.109E-02	.900E-03

TITLE- N9SIN

	C1	C2	C3	C4	C5	C6	C7	
1#	.00073	-.00710	-.01125	-.01274	-.01092	-.00834	-.00049	King
2#	.00034	-.00838	-.01182	-.01264	-.00911	-.00400	-.00120	Swear
3#	.00027	-.00776	-.01147	-.01236	-.00928	-.00601	-.00016	Cooper
4#	.00028	-.00827	-.01032	-.01173	-.00904	-.00666	-.00169	Brad
5#	.00056	-.00595	-.00917	-.01062	-.01144	-.00869	-.00378	Stovall
6#	-.00042	-.00778	-.01280	-.01383	-.01293	-.00926	-.00161	Dalbow
7#	.00037	-.00695	-.01172	-.01143	-.01072	-.00898	-.00108	Zeckman
8#	.00013	-.00743	-.01210	-.01368	-.01236	-.00924	-.00105	Quimby

32>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.289E-03	.349E-03	.123E-03	.780E-03	-.420E-03	.120E-02
C2	-.745E-02	.790E-03	.279E-03	-.595E-02	-.838E-02	.243E-02
C3	-.113E-01	.112E-02	.398E-03	-.917E-02	-.128E-01	.363E-02
C4	-.124E-01	.110E-02	.383E-03	-.106E-01	-.138E-01	.321E-02
C5	-.107E-01	.149E-02	.528E-03	-.904E-02	-.129E-01	.389E-02
C6	-.765E-02	.191E-02	.674E-03	-.400E-02	-.926E-02	.526E-02
C7	-.138E-02	.110E-02	.388E-03	-.160E-03	-.378E-02	.362E-02

TITLE- N26SIN

	C1	C2	C3	C4	C5	C6	C7	
1#	.00065	-.00683	-.01194	-.01415	-.01325	-.01035	-.00082	King
2#	.00107	-.00978	-.01264	-.01362	-.01178	-.00838	-.00226	Swear
3#	.00031	-.00870	-.01275	-.01279	-.01146	-.00766	-.00062	Cooper
4#	.00081	-.00816	-.01039	-.01187	-.01040	-.00897	-.00235	Brad
5#	.00032	-.00609	-.00973	-.01255	-.01343	-.01034	-.00219	Stovall
6#	.00031	-.00613	-.01289	-.01450	-.01562	-.01114	-.00195	Dalbow
7#	.00016	-.00782	-.01136	-.01350	-.01271	-.00954	-.00178	Zeckman
8#	.00028	-.00695	-.01216	-.01526	-.01452	-.01111	-.00048	Quimby

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.489E-03	.319E-03	.113E-03	.107E-02	.160E-03	.910E-03
C2	-.756E-02	.130E-02	.458E-03	-.609E-02	-.978E-02	.369E-02
C3	-.117E-01	.116E-02	.409E-03	-.973E-02	-.129E-01	.316E-02
C4	-.135E-01	.111E-02	.392E-03	-.119E-01	-.153E-01	.339E-02
C5	-.129E-01	.169E-02	.598E-03	-.104E-01	-.156E-01	.522E-02
C6	-.969E-02	.127E-02	.450E-03	-.766E-02	-.111E-01	.348E-02
C7	-.156E-02	.785E-03	.277E-03	-.480E-03	-.235E-02	.187E-02

TITLE- N9STN

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00022	-.00221	-.00333	.00307	.00691	.00519	-.00033	King
2#	.00060	-.00245	-.00176	.00215	.00756	.00567	-.00056	Swear
3#	.00000	-.00175	-.00232	.00214	.00679	.00487	.00027	Cooper
4#	-.00046	-.00327	-.00159	.00466	.00601	.00484	-.00046	Brad
5#	.00092	-.00229	-.00422	.00265	.00670	.00547	.00000	Stovall
6#	.00058	-.00157	-.00206	.00206	.00680	.00519	-.00049	Dalbow
7#	.00000	-.00273	-.00261	.00149	.00716	.00493	-.00037	Zeckman
8#	.00013	-.00229	-.00317	.00299	.00737	.00550	-.00031	Quimby

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.194E-03	.466E-03	.165E-03	.920E-03	-.460E-03	.138E-02
C2	-.232E-02	.533E-03	.188E-03	-.157E-02	-.327E-02	.170E-02
C3	-.263E-02	.892E-03	.315E-03	-.159E-02	-.422E-02	.263E-02
C4	.265E-02	.966E-03	.342E-03	.466E-02	.149E-02	.317E-02
C5	.691E-02	.475E-03	.168E-03	.756E-02	.601E-02	.155E-02
C6	.521E-02	.315E-03	.111E-03	.567E-02	.484E-02	.830E-03
C7	-.281E-03	.280E-03	.989E-04	.270E-03	-.560E-03	.830E-03

TITLE- N26STN

	C1	C2	C3	C4	C5	C6	C7	
1#	1.6E-04	-.00182	-.00286	.00380	.00679	.00499	-3.70000E-04	King
2#	1.2E-03	-.00202	-.00150	.00314	.00739	.00546	-3.40000E-04	Swear
3#	1.9E-04	-.00134	-.00189	.00207	.00694	.00495	-4.70000E-04	Cooper
4#	-2.0E-05	-.00208	-.00184	.00364	.00648	.00489	-6.70000E-04	Brad
5#	4.0E-04	-.00265	-.00354	.00197	.00649	.00507	-1.40000E-04	Stovall
6#	7.6E-04	-.00121	-.00197	.00080	.00783	.00515	-4.50000E-04	Dalbow
7#	-4.0E-05	-.00265	-.00296	.00141	.00683	.00476	-8.00000E-05	Zeckman
8#	2.2E-04	-.00273	-.00246	.00303	.00752	.00581	2.60000E-04	Quimby

ELEME
N7>TARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.359E-03	.424E-03	.150E-03	.120E-02	-.400E-04	.124E-02
C2	-.206E-02	.591E-03	.209E-03	-.121E-02	-.273E-02	.152E-02
C3	-.238E-02	.696E-03	.246E-03	-.150E-02	-.354E-02	.204E-02
C4	.248E-02	.108E-02	.383E-03	.380E-02	.800E-03	.300E-02
C5	.703E-02	.494E-03	.175E-03	.783E-02	.648E-02	.135E-02
C6	.513E-02	.343E-03	.121E-03	.581E-02	.476E-02	.105E-02
C7	-.283E-03	.288E-03	.102E-03	.260E-03	-.670E-03	.930E-03

TITLE: N9SUN

	C1	C2	C3	C4	C5	C6	C7	
1#	-4.50000E-04	.00098	.00180	-.00065	-.00630	-2.17000E-03	.00090	King
2#	8.00000E-05	.00198	.00296	-.00082	-.00432	-1.42000E-03	.00026	Swear
3#	-7.80000E-04	.00191	.00257	-.00101	-.00581	-1.79000E-03	-.00086	Cooper
4#	-7.00000E-05	.00092	.00413	.00099	-.00291	.00000E+00	.00046	Brad
5#	8.40000E-04	.00094	.00370	.00010	-.00233	8.00000E-05	.00036	Stovall
6#	-4.90000E-04	.00268	.00582	.00188	-.00367	-1.34000E-03	-.00013	Dalbow
7#	1.20000E-04	.00215	.00364	.00012	-.00505	-4.50000E-04	-.00064	Zeckman
8#	-4.80000E-04	.00145	.00308	-.00176	-.00563	-2.04000E-03	.00017	Quimby

23>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.154E-03	.510E-03	.180E-03	.840E-03	-.780E-03	.166E-02
C2	.163E-02	.656E-03	.232E-03	.268E-02	.920E-03	.176E-02
C3	.346E-02	.120E-02	.424E-03	.582E-02	.180E-02	.402E-02
C4	-.144E-03	.117E-02	.414E-03	.188E-02	-.176E-02	.364E-02
C5	-.450E-02	.144E-02	.509E-03	-.233E-02	-.630E-02	.397E-02
C6	-.114E-02	.900E-03	.318E-03	.800E-04	-.217E-02	.225E-02
C7	.650E-04	.583E-03	.206E-03	.900E-03	-.860E-03	.176E-02

TITLE- N26SUN

	C1	C2	C3	C4	C5	C6	
1#	-6.10000E-04	.00121	.00215	-1.78000E-03	-.00706	-.00323	King
2#	-4.00000E-05	.00223	.00348	-2.10000E-04	-.00520	-.00215	Swear
3#	-7.40000E-04	.00189	.00232	-1.66000E-03	-.00380	-.00187	Cooper
4#	-1.80000E-04	.00134	.00381	1.16000E-03	-.00272	-.00191	Brad
5#	1.00000E-03	.00024	.00378	1.60000E-04	-.00388	-.00151	Stovall
6#	-6.70000E-04	.00219	.00606	1.01000E-03	-.00523	-.00170	Dalbow
7#	-5.00000E-04	.00199	.00375	-2.00000E-05	-.00476	-.00087	Zeckman
8#	6.10000E-04	.00119	.00286	-2.57000E-03	-.00682	-.00273	Quimby

TITLE- N26SUN

	C7	
1#	9.40000E-04	King
2#	-8.00000E-05	Swear
3#	-2.30000E-04	Cooper
4#	3.90000E-04	Brad
5#	4.20000E-04	Stovall
6#	-4.00000E-05	Dalbow
7#	-4.30000E-04	Zeckman
8#	4.40000E-04	Quimby

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.141E-03	.640E-03	.226E-03	.100E-02	-.740E-03	.174E-02
C2	.153E-02	.675E-03	.238E-03	.223E-02	.240E-03	.199E-02
C3	.353E-02	.122E-02	.431E-03	.606E-02	.215E-02	.391E-02
C4	-.489E-03	.137E-02	.483E-03	.116E-02	-.257E-02	.373E-02
C5	-.493E-02	.149E-02	.527E-03	-.272E-02	-.706E-02	.434E-02
C6	-.200E-02	.727E-03	.257E-03	-.870E-03	-.323E-02	.236E-02
C7	.176E-03	.448E-03	.158E-03	.940E-03	-.430E-03	.137E-02

TABLE I-8

STATISTICAL ANALYSIS OF ROLLING MOMENT COEFFICIENT AS A FUNCTION OF YAW ANGLE FOR AVAILABLE HUMAN SUBJECT DATA

$C_{\ell_{L\sqrt{WL}}}$

TITLE- Z9SIC

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00082	-.00538	-.00311	.00155	.00274	.00073	-.00045	King
2#	.00069	-.00559	-.00696	-.00606	.00318	.00587	.00034	Swear
3#	.00160	-.00289	-.00540	-.00741	.00273	.00328	.00098	Cooper
4#	-.00035	-.00650	-.00922	-.00064	.00307	.00228	-.00216	Brad
5#	.00044	-.00263	-.00700	.00060	.00643	.00104	.00000	Stovall
6#	-.00058	-.00456	-.00512	.00255	.00430	.00134	-.00210	Dalbow
7#	-.00012	-.00319	-.00749	-.00182	.00294	.00056	-.00145	Zeckman
8#	-.00163	-.00818	-.00961	.00240	.00550	-.00163	-.00018	Quimby

19>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.963E-04	.997E-03	.352E-03	.160E-02	-.163E-02	.323E-02
C2	-.487E-02	.194E-02	.685E-03	-.263E-02	-.818E-02	.555E-02
C3	-.674E-02	.216E-02	.764E-03	-.311E-02	-.961E-02	.650E-02
C4	-.110E-02	.379E-02	.134E-02	.255E-02	-.741E-02	.996E-02
C5	.386E-02	.141E-02	.499E-03	.643E-02	.273E-02	.370E-02
C6	.168E-02	.221E-02	.781E-03	.587E-02	-.163E-02	.750E-02
C7	-.628E-03	.116E-02	.408E-03	.980E-03	-.216E-02	.314E-02

TITLE- Z26SIC

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00079	-.00722	-.00082	-.00163	-.00119	-.00159	-1.24000E-03	King
2#	.00013	-.00602	-.00808	-.00628	.00320	.00434	-3.80000E-04	Swear
3#	.00050	-.00460	-.00729	-.00955	.00031	.00133	2.00000E-05	Cooper
4#	-.00120	-.00696	-.00904	.00025	.00025	-.00039	-8.40000E-04	Brad
5#	-.00056	-.00557	-.00861	-.00422	.00109	-.00028	-4.80000E-04	Stovall
6#	-.00138	-.00687	-.00940	-.00264	.00242	.00054	-3.10000E-04	Dalbow
7#	.00012	-.00592	-.00966	-.00443	.00207	.00097	-6.80000E-04	Zeckman
8#	-.00031	-.00968	-.01139	-.00134	.00594	-.00189	-2.11000E-03	Quimby

44>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.436E-03	.669E-03	.237E-03	.500E-03	-.138E-02	.188E-02
C2	-.661E-02	.151E-02	.533E-03	-.460E-02	-.968E-02	.508E-02
C3	-.804E-02	.316E-02	.112E-02	-.820E-03	-.114E-01	.106E-01
C4	-.373E-02	.312E-02	.110E-02	.250E-03	-.955E-02	.980E-02
C5	.176E-02	.219E-02	.775E-03	.594E-02	-.119E-02	.713E-02
C6	.379E-03	.196E-02	.695E-03	.434E-02	-.189E-02	.623E-02
C7	-.753E-03	.665E-03	.235E-03	.200E-04	-.211E-02	.213E-02

TITLE- Z9SUC

	C1	C2	C3	C4	C5	C6	C7	
1#	.00000E+00	.00045	.00250	.00352	-.00200	-.00184	-.00033	King
2#	.00000E+00	.00196	.00426	.00460	-.00335	-.00168	-.00026	Swear
3#	-6.60000E-04	.00176	.00222	.00378	-.00296	-.00176	-.00070	Cooper
4#	.00000E+00	.00088	.00420	.00177	-.00258	-.00042	-.00046	Brad
5#	8.00000E-05	.00145	.00382	.00418	-.00330	-.00133	-.00012	Stovall
6#	2.20000E-04	.00175	.00541	-.00121	-.00331	-.00237	-.00022	Dalbow
7#	2.10000E-04	.00170	.00596	.00468	-.00054	-.00174	-.00058	Zeckman
8#	-4.00000E-05	.00180	.00427	.00286	-.00251	-.00106	-.00057	Quimby

32>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.238E-04	.276E-03	.974E-04	.220E-03	-.660E-03	.880E-03
C2	.147E-02	.528E-03	.187E-03	.196E-02	.450E-03	.151E-02
C3	.408E-02	.128E-02	.451E-03	.596E-02	.222E-02	.374E-02
C4	.302E-02	.196E-02	.693E-03	.468E-02	-.121E-02	.589E-02
C5	-.257E-02	.948E-03	.335E-03	-.540E-03	-.335E-02	.281E-02
C6	-.153E-02	.587E-03	.208E-03	-.420E-03	-.237E-02	.195E-02
C7	-.405E-03	.204E-03	.720E-04	-.120E-03	-.700E-03	.580E-03

TITLE- Z26SUC

	C1	C2	C3	C4	C5	C6	C7	
1#	-1.60000E-04	.00172	.00168	.00151	-.00356	-.00270	-4.10000E-04	King
2#	4.00000E-05	.00161	.00383	.00292	-.00456	-.00236	-4.70000E-04	Swear
3#	-8.00000E-05	.00179	.00254	.00222	-.00468	-.00250	-3.50000E-04	Cooper
4#	.00000E+00	.00078	.00290	.00463	-.00216	-.00092	-3.20000E-04	Brad
5#	4.00000E-05	.00197	.00446	.00471	-.00302	-.00193	-5.20000E-04	Stovall
6#	9.00000E-05	.00076	.00313	.00425	-.00685	-.00273	-4.00000E-05	Dalbow
7#	-2.10000E-04	.00219	.00518	.00385	-.00257	-.00224	-3.30000E-04	Zeckman
8#	4.00000E-05	.00079	.00063	.00090	-.00318	-.00180	-7.00000E-04	Quimby

36>D-ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.300E-04	.108E-03	.382E-04	.900E-04	-.210E-03	.300E-03
C2	.145E-02	.585E-03	.207E-03	.219E-02	.760E-03	.143E-02
C3	.304E-02	.147E-02	.520E-03	.518E-02	.630E-03	.455E-02
C4	.312E-02	.146E-02	.517E-03	.471E-02	.900E-03	.381E-02
C5	-.382E-02	.151E-02	.533E-03	-.216E-02	-.685E-02	.469E-02
C6	-.215E-02	.597E-03	.211E-03	-.920E-03	-.273E-02	.181E-02
C7	-.393E-03	.190E-03	.671E-04	-.400E-04	-.700E-03	.660E-03

TITLE- Z9STC

	C1	C2	C3	C4	C5	C6	
1#	.00245	-4.01000E-03	-.00311	-.00376	.00458	.00307	King
2#	-.00047	-3.31000E-03	-.00129	-.00213	.00041	.00086	Swear
3#	.00058	4.00000E-05	.00043	-.00355	.00185	.00133	Cooper
4#	-.00314	-6.71000E-03	-.00654	.00290	-.00353	-.00332	Brad
5#	-.00169	-4.42000E-03	-.00571	-.00599	.00112	.00247	Stovall
6#	-.00085	8.50000E-04	-.00087	-.01060	.00414	.00479	Dalbow
7#	-.00066	-4.55000E-03	-.00493	-.00716	.00306	.00571	Zeckman
8#	.00242	-4.27000E-03	-.00801	-.00818	.00906	.00620	Quimby

TITLE- Z9STC

	C7	
1#	-5.17000E-03	King
2#	-1.03000E-03	Swear
3#	-1.33000E-03	Cooper
4#	-2.61000E-03	Brad
5#	4.60000E-04	Stovall
6#	-8.90000E-04	Dalbow
7#	-2.36000E-03	Zeckman
8#	4.00000E-05	Quimby

3>WELEMENTARY

COMMAND NOT RECOGNIZED.

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.170E-03	.193E-02	.682E-03	.245E-02	-.314E-02	.559E-02
C2	-.330E-02	.251E-02	.889E-03	.850E-03	-.671E-02	.756E-02
C3	-.375E-02	.301E-02	.106E-02	.430E-03	-.801E-02	.844E-02
C4	-.481E-02	.416E-02	.147E-02	.290E-02	-.106E-01	.135E-01
C5	.259E-02	.365E-02	.129E-02	.906E-02	-.353E-02	.126E-01
C6	.264E-02	.310E-02	.110E-02	.620E-02	-.332E-02	.952E-02
C7	-.161E-02	.178E-02	.629E-03	.460E-03	-.517E-02	.563E-02

TITLE- Z26STC

	C1	C2	C3	C4	C5	C6	C7	
1#	7.10000E-04	-.00503	-.00524	-.00311	.00229	.00049	-.00155	King
2#	8.40000E-04	-.00387	-.00238	-.00153	-.00262	-.00120	-.00163	Swear
3#	8.70000E-04	.00037	-.00017	-.00626	.00116	.00119	-.00059	Cooper
4#	-1.41000E-03	.00491	-.00530	.00413	-.00364	-.00489	.00106	Brad
5#	-1.60000E-04	-.00105	-.00286	-.01399	.00225	.00267	-.00113	Stovall
6#	-1.10000E-04	-.00031	-.00232	-.01087	.00756	.00550	-.00219	Dalbow
7#	6.00000E-05	-.00480	-.00803	-.00635	.00252	.00406	-.00138	Zeckman
8#	1.45000E-03	-.00805	-.01060	-.00860	.00547	.00255	-.00156	Ouimby

11>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.281E-03	.884E-03	.312E-03	.145E-02	-.141E-02	.286E-02
C2	-.223E-02	.403E-02	.143E-02	.491E-02	-.805E-02	.130E-01
C3	-.461E-02	.341E-02	.121E-02	-.170E-03	-.106E-01	.104E-01
C4	-.582E-02	.567E-02	.201E-02	.413E-02	-.140E-01	.181E-01
C5	.187E-02	.372E-02	.132E-02	.756E-02	-.364E-02	.112E-01
C6	.130E-02	.325E-02	.115E-02	.550E-02	-.489E-02	.104E-01
C7	-.112E-02	.992E-03	.351E-03	.106E-02	-.219E-02	.325E-02

TITLE- Z9SIN

	C1	C2	C3	C4	C5	C6	C7	
1#	.00094	-.00360	-.00536	-.00221	.00454	.00012	7.80000E-04	King
2#	-.00039	-.00494	-.00872	-.00628	.00640	.00666	9.00000E-05	Swear
3#	-.00039	-.00355	-.00725	-.00458	.00503	.00339	-5.00000E-04	Cooper
4#	-.00053	-.00424	-.01007	-.00523	.00572	.00385	-7.40000E-04	Brad
5#	.00080	-.00523	-.00652	-.00607	.00488	-.00153	-1.93000E-03	Stovall
6#	.00197	-.00430	-.00591	-.00233	.00385	-.00177	-3.22000E-03	Dalbow
7#	-.00153	-.00546	-.00468	-.00356	.00511	-.00054	-1.12000E-03	Zeckman
8#	-.00123	-.00867	-.01025	-.00299	.00464	-.00123	-1.36000E-03	Quimby

27>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.450E-04	.118E-02	.419E-03	.197E-02	-.153E-02	.350E-02
C2	-.500E-02	.164E-02	.580E-03	-.355E-02	-.867E-02	.512E-02
C3	-.735E-02	.212E-02	.751E-03	-.468E-02	-.102E-01	.557E-02
C4	-.416E-02	.162E-02	.572E-03	-.221E-02	-.628E-02	.407E-02
C5	.502E-02	.771E-03	.273E-03	.640E-02	.385E-02	.255E-02
C6	.112E-02	.312E-02	.110E-02	.666E-02	-.177E-02	.843E-02
C7	-.100E-02	.123E-02	.435E-03	.780E-03	-.322E-02	.400E-02

TITLE- Z26SIN

	C1	C2	C3	C4	C5	C6	C7	
1#	-9.00000E-04	-.00344	-.00290	-.00074	.00200	-.00180	-8.00000E-05	King
2#	-5.20000E-04	-.00567	-.00917	-.00748	.00223	.00284	-1.80000E-03	Swear
3#	1.20000E-04	-.00250	-.00764	-.00702	.00207	.00211	-3.90000E-04	Cooper
4#	-6.10000E-04	-.00618	-.01010	-.00477	.00472	.00173	-9.50000E-04	Brad
5#	4.40000E-04	-.00684	-.00820	-.00374	.00024	-.00135	-8.00000E-04	Stovall
6#	4.00000E-05	-.00743	-.00967	-.00251	.00166	-.00192	-2.43000E-03	Dalbow
7#	-7.00000E-04	-.00613	-.00706	-.00373	.00200	-.00043	3.39000E-03	Zeckman
8#	-6.20000E-04	-.00792	-.01038	-.00374	.00273	-.00147	-2.20000E-04	Quimby

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.344E-03	.477E-03	.169E-03	.440E-03	-.900E-03	.134E-02
C2	-.576E-02	.189E-02	.668E-03	-.250E-02	-.792E-02	.542E-02
C3	-.814E-02	.242E-02	.857E-03	-.290E-02	-.104E-01	.748E-02
C4	-.422E-02	.222E-02	.785E-03	-.740E-03	-.748E-02	.674E-02
C5	.221E-02	.125E-02	.440E-03	.472E-02	.240E-03	.448E-02
C6	-.363E-04	.195E-02	.689E-03	.284E-02	-.192E-02	.476E-02
C7	-.410E-03	.173E-02	.613E-03	.339E-02	-.243E-02	.582E-02

TITLE- Z9SUN

	C1	C2	C3	C4	C5	C6	C7	
1#	1.60000E-04	.00139	.00266	.00695	-.00205	-.00245	-1.60000E-04	King
2#	-2.60000E-04	.00228	.00464	.00696	-.00292	-.00082	-1.30000E-04	Swear
3#	-4.00000E-05	.00222	.00339	.00573	-.00167	-.00113	-1.60000E-04	Cooper
4#	-1.10000E-04	.00081	.00307	.00707	-.00057	.00025	2.80000E-04	Brad
5#	-2.00000E-04	.00169	.00229	.00454	-.00253	-.00044	.00000E+00	Stovall
6#	-2.90000E-04	.00246	.00492	.00833	-.00385	-.00134	-5.80000E-04	Dalbow
7#	2.10000E-04	.00253	.00422	.00368	-.00157	-.00128	8.00000E-05	Zeckman
8#	6.20000E-04	.00136	.00180	.00242	-.00312	-.00039	-2.60000E-04	Quimby

40>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	.112E-04	.307E-03	.108E-03	.620E-03	-.290E-03	.910E-03
C2	.184E-02	.623E-03	.220E-03	.253E-02	.810E-03	.172E-02
C3	.337E-02	.113E-02	.400E-03	.492E-02	.180E-02	.312E-02
C4	.496E-02	.201E-02	.709E-03	.707E-02	.233E-02	.474E-02
C5	-.229E-02	.103E-02	.366E-03	-.570E-03	-.385E-02	.328E-02
C6	-.950E-03	.808E-03	.286E-03	.250E-03	-.245E-02	.270E-02
C7	-.116E-03	.253E-03	.895E-04	.280E-03	-.580E-03	.860E-03

TITLE- Z26SUN

	C1	C2	C3	C4	C5	C6	C7	
1#	4.00000E-05	.00163	.00217	.00548	-.00348	-.00270	-.00057	King
2#	1.30000E-04	.00198	.00340	.04779	-.00378	-.00172	-.00039	Swear
3#	4.00000E-05	.00148	.00207	.00429	-.00344	-.00132	-.00031	Cooper
4#	-1.10000E-04	.00870	.02580	.04800	-.01170	-.00630	-.00090	Brad
5#	-1.60000E-04	.00217	.00201	.00523	-.00290	-.00098	-.00040	Stovall
6#	-3.10000E-04	.00157	.00416	.00311	-.00568	-.00251	-.00027	Dalbow
7#	-8.00000E-05	.00186	.00431	.00476	-.00203	-.00153	-.00021	Zeckman
8#	-1.30000E-04	.00097	.00257	.00103	.00620	-.00128	-.00013	Quimby

3>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.725E-04	.139E-03	.491E-04	.130E-03	-.310E-03	.440E-03
C2	.254E-02	.251E-02	.889E-03	.870E-02	.970E-03	.773E-02
C3	.581E-02	.813E-02	.287E-02	.258E-01	.201E-02	.238E-01
C4	.150E-01	.204E-01	.720E-02	.480E-01	.103E-02	.470E-01
C5	-.335E-02	.491E-02	.173E-02	.620E-02	-.117E-01	.179E-01
C6	-.229E-02	.173E-02	.611E-03	-.980E-03	-.630E-02	.532E-02
C7	-.398E-03	.243E-03	.859E-04	-.130E-03	-.900E-03	.770E-03

TITLE- Z9STN

	C1	C2	C3	C4	C5	C6	C7	
1#	-2.04000E-03	-.00438	-.00635	-.00288	.00487	.00090	-.00200	King
2#	2.00000E-05	-.00365	-.00269	-.00189	.00511	.00344	-.00013	Swear
3#	-2.70000E-04	-.00027	-.00253	-.00400	.00546	.00277	-.00023	Cooper
4#	-2.86000E-03	-.00583	-.00512	.00484	.00297	-.00215	-.00139	Brad
5#	8.00000E-04	-.00579	-.01047	-.00241	.00275	.00223	-.00141	Stovall
6#	-4.00000E-04	-.00295	-.00676	-.00738	.00653	.00555	-.00063	Dalbow
7#	-1.61000E-03	-.00397	-.00298	-.00683	.00708	.00559	-.00157	Zeckman
8#	7.50000E-04	-.00587	-.01194	-.00132	.00704	.00537	.00145	Quimby

7>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.701E-03	.133E-02	.471E-03	.800E-03	-.286E-02	.366E-02
C2	-.409E-02	.190E-02	.672E-03	-.270E-03	-.587E-02	.560E-02
C3	-.611E-02	.356E-02	.126E-02	-.253E-02	-.119E-01	.941E-02
C4	-.273E-02	.378E-02	.134E-02	.484E-02	-.738E-02	.122E-01
C5	.523E-02	.168E-02	.595E-03	.708E-02	.275E-02	.433E-02
C6	.296E-02	.269E-02	.950E-03	.559E-02	-.215E-02	.774E-02
C7	-.739E-03	.111E-02	.392E-03	.145E-02	-.200E-02	.345E-02

TITLE- Z26STN

	C1	C2	C3	C4	C5	C6	C7	
1#	-.00051	-.00423	-.00593	-.00125	.00272	.00196	-.00127	King
2#	.00273	-.00501	-.00361	-.00176	.00198	.00021	-.00150	Swear
3#	-.00025	-.00019	-.00347	-.00760	.00177	.00310	.00070	Cooper
4#	-.00159	-.00450	-.00765	.00101	.00044	-.00154	.00124	Brad
5#	-.00108	-.00555	-.00790	-.00312	.00048	.00056	-.00201	Stovall
6#	-.00058	-.00273	-.00506	-.01007	.00546	.00389	-.00139	Dalbow
7#	.00031	-.00445	-.00617	-.00892	.00350	.00406	-.00079	Zeckman
8#	-.00035	-.00658	-.00761	-.00369	.00402	.00187	-.00013	Quimby

23>ELEMENTARY

VARIABLE	MEAN	STD DEV	STD ERR	MAXIMUM	MINIMUM	RANGE
C1	-.165E-03	.130E-02	.459E-03	.273E-02	-.159E-02	.432E-02
C2	-.416E-02	.195E-02	.688E-03	-.190E-03	-.658E-02	.639E-02
C3	-.593E-02	.177E-02	.625E-03	-.347E-02	-.790E-02	.443E-02
C4	-.443E-02	.398E-02	.141E-02	.101E-02	-.101E-01	.111E-01
C5	.255E-02	.174E-02	.616E-03	.546E-02	.440E-03	.502E-02
C6	.176E-02	.194E-02	.687E-03	.406E-02	-.154E-02	.560E-02
C7	-.644E-03	.115E-02	.405E-03	.124E-02	-.201E-02	.325E-02

TABLE I-9

AVERAGE OF MEANS AND STANDARD DEVIATIONS FOR FORCE AND MOMENT COEFFICIENTS FOR DYNAMIC PRESSURES OF 9 AND 26 POUNDS PER SQUARE FOOT YAW ANGLE FOR AVAILABLE HUMAN SUBJECT DATA

DRAG

CONFIGURATION	YAW ANGLE	AVERAGE OF THE TWO MEANS	AVERAGE STD DEV
DSIC	0°	.1845	.00636
	30°	.177	.00688
	60°	.1395	.005965
	90°	.1095	.00766
	120°	.135	.007865
	150°	.1635	.00563
	180°	.171	.00668
DSUC	0°	.03465	.001162
	30°	.0587	.00182
	60°	.10245	.0036
	90°	.1185	.004835
	120°	.1045	.0038
	150°	.057	.001685
	180°	.0329	.00161
DSTC	0°	.284	.007655
	30°	.2525	.00559
	60°	.177	.00846
	90°	.1245	.005895
	120°	.176	.008385
	150°	.241	.009495
	180°	.2635	.009725
DSIN	0°	.162	.00631
	30°	.1585	.00575
	60°	.1265	.00537
	90°	.09685	.0072
	120°	.125	.006065
	150°	.150	.006255
	180°	.154	.00751
DSTN	0°	.2555	.008865
	30°	.223	.007155
	60°	.1535	.006
	90°	.10235	.005395
	120°	.1515	.0119
	150°	.21	.00999
	180°	.232	.00944
DSUN	0°	.033	.001585
	30°	.05515	.00241
	60°	.08845	.004245
	90°	.1007	.00535
	120°	.0905	.005085
	150°	.0526	.00221
	180°	.03175	.001705

CONFIGURATION	YAW ANGLE	AVERAGE OF THE TWO MEANS	AVERAGE STD DEV
LSIN	0°	-.0483	.01265
	30°	-.04475	.01225
	60°	-.02235	.00729
	90°	-.00262	.00302
	120°	.01073	.004625
	150°	.0216	.008335
	180°	.0256	.00935
LSUC	0°	.003645	.002945
	30°	.0144	.00536
	60°	.01028	.009205
	90°	-.001585	.0129
	120°	.0038355	.00617
	150°	.0121	.004085
	180°	.001975	.00251
LSIC	0°	-.0572	.01445
	30°	-.0527	.01385
	60°	-.0284	.009835
	90°	-.00226	.003705
	120°	.01235	.006565
	150°	.02595	.00932
	180°	.0305	.0094
LSTC	0°	.003174	.00612
	30°	.005915	.0052
	60°	.006405	.003055
	90°	-.001213	.00252
	120°	.0026585	.002715
	150°	-.00398	.003315
	180°	-.0068	.006585
LSTN	0°	-.00056	.00468
	30°	.00284	.003705
	60°	.004365	.002735
	90°	-.000949	.00255
	120°	.005025	.004235
	150°	-.00054	.00331
	180°	-.0032375	.00445
LSUN	0°	.00468	.00216
	30°	.0181	.00379
	60°	.0164	.004955
	90°	.006065	.006175
	120°	.009285	.00585
	150°	.01075	.003195
	180°	-.000865	.001795

CONFIGURATION	YAW ANGLE	AVERAGE OF THE TWO MEANS	AVERAGE STD DEV
YSUC	0°	-.0004025	.0007245
	30°	.0176	.002875
	60°	.0246	.00438
	90°	.005775	.00309
	120°	-.03985	.00622
	150°	-.02765	.0045
	180°	-.00199	.0010665
YSIC	0°	.0003433	.004265
	30°	-.0244	.00761
	60°	-.02885	.00961
	90°	.000395	.01515
	120°	.0145	.010985
	150°	.0165	.0124
	180°	-.000326	.00364
YSTN	0°	.000107	.00298
	30°	-.0682	.013825
	60°	-.07165	.017
	90°	-.00801	.010105
	120°	.05145	.008375
	150°	.03815	.0105
	180°	-.0000725	.00272
YSIN	0°	.00185	.00276
	30°	-.0206	.007705
	60°	-.02545	.009775
	90°	-.01011	.008635
	120°	.01795	.00475
	150°	.0129	.01285
	180°	-.0012065	.00379
YSUN	0°	.0003415	.000934
	30°	.0161	.001625
	60°	.02045	.002465
	90°	.006105	.00202
	120°	-.0357	.004325
	150°	-.0255	.00332
	180°	-.00191	.001074
YSTC	0°	-.000233	.00323
	30°	-.0738	.01285
	60°	-.07615	.01195
	90°	-.0144	.0262
	120°	.05	.0251
	150°	.0386	.0108
	180°	-.00201	.006815

CONFIGURATION	YAW ANGLE	AVERAGE OF THE TWO MEANS	AVERAGE STD DEV
MSUN	0°	.00737	.0005135
	30°	.00755	.000644
	60°	.01071	.001089
	90°	.01215	.0011985
	120°	.0121	.0011945
	150°	.0109	.0009895
	180°	.009255	.0009155
MSTC	0°	.02335	.00367
	30°	.02	.003415
	60°	.0132	.00228
	90°	.00957	.0010105
	120°	.0117	.00204
	150°	.01425	.002605
	180°	.0182	.003855
MSUC	0°	.00808	.0005415
	30°	.00883	.000584
	60°	.01205	.0008585
	90°	.014	.0011055
	120°	.0135	.001255
	150°	.01085	.0008965
	180°	.008135	.001115
MSIN	0°	.01845	.002115
	30°	.01605	.00177
	60°	.0107	.00152
	90°	.01065	.00188
	120°	.0143	.001545
	150°	.0184	.001735
	180°	.01925	.002125
MSTN	0°	.0216	.0026
	30°	.0191	.0022
	60°	.0128	.00147
	90°	.00947	.0009005
	120°	.01165	.001445
	150°	.01475	.00182
	180°	.01815	.003085
MSIC	0°	.02065	.002325
	30°	.01785	.002055
	60°	.01195	.001435
	90°	.01165	.001615
	120°	.0151	.00184
	150°	.02045	.003405
	180°	.0217	.00285

CONFIGURATION	YAW ANGLE	AVERAGE OF THE TWO MEANS	AVERAGE STD DEV
NSUC	0°	-.000421	.0005105
	30°	.003155	.000622
	60°	.00484	.0010595
	90°	.0001982	.00159
	120°	-.00524	.001705
	150°	-.00246	.0010005
	180°	.000331	.000575
NSTN	0°	.0002765	.000445
	30°	-.00219	.000562
	60°	-.002505	.000794
	90°	.002565	.001023
	120°	.00697	.0004845
	150°	.00517	.000329
	180°	-.000282	.000284
NSIC	0°	.0004925	.000857
	30°	-.008365	.00132
	60°	-.0126	.001175
	90°	-.014	.001054
	120°	-.011035	.0058[illegible]5
	150°	-.00893	.001855
	180°	-.000872	.00111
NSTC	0°	.0000767	.000398
	30°	-.002465	.0004735
	60°	-.00254	.000701
	90°	.002765	.001345
	120°	.00768	.000624
	150°	.005705	.000453
	180°	-.0006435	.0003
NSUN	0°	-.0001475	.000575
	30°	.00158	.0006655
	60°	.003495	.00121
	90°	-.0003165	.00127
	120°	-.004715	.001465
	150°	-.00157	.0008135
	180°	.0001205	.0005155
NSIN	0°	.000389	.000334
	30°	-.007505	.001045
	60°	-.0115	.00114
	90°	-.01295	.001105
	120°	-.0118	.00159
	150°	-.00867	.00159
	180°	-.00147	.0009425

CONFIGURATION	YAW ANGLE	AVERAGE OF THE TWO MEANS	AVERAGE STD DEV
ZSIN	0°	-.0001945	.0008285
	30°	-.00538	.001765
	60°	-.007745	.00227
	90°	-.00419	.00192
	120°	.003615	.0010105
	150°	.0005418	.002535
	180°	-.000705	.00148
ZSUN	0°	-.0000306	.000223
	30°	.00219	.0015665
	60°	.00459	.00463
	90°	.00998	.011205
	120°	-.00282	.00297
	150°	-.00162	.001269
	180°	-.000257	.000248
ZSTN	0°	-.000433	.001315
	30°	-.004125	.001925
	60°	-.00602	.002665
	90°	-.00358	.00388
	120°	.00389	.00171
	150°	.00236	.002315
	180°	-.006915	.00113
ZSIC	0°	-.0002661	.000833
	30°	-.00574	.001725
	60°	-.00739	.00266
	90°	-.002415	.003455
	120°	.00281	.0018
	150°	.0010295	.002085
	180°	-.0006905	.0009125
ZSUC	0°	-.0000269	.000192
	30°	.00146	.0005565
	60°	.00356	.001375
	90°	.00307	.00171
	120°	-.003195	.001229
	150°	-.00184	.000592
	180°	-.000399	.000197
ZSTC	0°	.0000555	.001407
	30°	-.002765	.00327
	60°	-.00418	.00321
	90°	-.005315	.004915
	120°	.00223	.003685
	150°	.00197	.003175
	180°	-.001365	.001386

APPENDIX II

THE WEBER DATA IN TABULAR FORM

TABLE 11-1

FORCE AREAS AND MOMENT VOLUMES (BODY AXIS)
FOR A FULLY EQUIPPED (75) PERCENTILE DUMMY
PLUS SURVIVAL KIT

Pitch Angle	Yaw Angle	Drag Force Area	Side Force Force Area	Lift Force Area	Rolling Moment Volume	Pitching Moment Volume	Yawing Moment Volume
0°	5	-6.656	-0.4051	0.4279	0.9847	-1.252	-0.3532
	10	-6.458	-0.7694	0.2571	1.413	-1.140	-0.1712
	20	-6.072	-1.700	0.1090	1.707	-0.8990	0.0268
	30	-5.565	-3.307	-0.1126	1.675	-0.7224	-0.0642
	40	-4.765	-4.403	-0.4624	1.648	-0.7117	-0.1498
	50	-3.999	-5.112	-0.7176	1.295	-0.3264	-0.4709
	60	-2.889	-5.618	-0.7594	0.8455	-0.1552	-0.6208
	70	-1.520	-5.506	-0.7612	0.2943	-0.2515	-0.6368
	80	-0.0272	-5.386	-0.5768	0.4335	0.1498	-0.4174
	90	-0.3416	-5.301	-0.2970	0.4281	-0.0214	-0.0642
30°	5	-5.484	-0.7522	-0.6077	1.777	-2.14	0.0963
	15	-5.399	-1.282	-0.6095	2.232	-2.173	0.0803
	30	-4.606	-2.989	-0.8966	3.018	-1.274	0.0268
	45	-3.500	-4.586	-0.7812	2.906	-1.011	-0.2515
	60	-2.383	-5.206	-1.040	1.873	-0.4228	-0.6208
	75	-0.8902	-5.096	-0.643.	0.8455	0.2408	-0.3746
	90	-0.3416	-5.301	-0.2970	0.4228	-0.0214	-0.0642
60°	5	-2.666	-0.1389	-2.102	0.7385	-1.242	-0.1873
	15	-2.756	-1.259	-1.986	1.225	-0.4067	-0.2783
	30	-2.553	-2.702	-1.754	1.814	-0.6422	-0.1823
	45	-2.277	-3.896	-1.505	2.355	-0.4923	-0.3050
	60	-1.087	-5.113	-1.136	2.665	-0.0910	-0.3211
	75	-0.6631	-5.093	-0.6849	1.798	0.0589	-0.3371
	90	-0.3416	-5.301	-0.2970	0.4228	-0.0214	-0.0642
90°	5	0.1363	-0.2662	-2.207	0.2087	0.4549	0.1284
	15	0.2126	-1.443	-2.276	0.5994	0.4228	-0.0749
	30	0.7531	-2.440	-2.260	1.113	0.2087	-0.0268
	45	0.3516	-3.674	-2.029	2.483	0.3532	-0.2355
	60	0.3352	-4.523	-1.262	2.938	0.2301	-0.2622
	75	-0.3425	-5.028	-0.9148	2.017	0.0107	-0.0428
	90	-0.3416	-5.301	-0.2970	0.4281	-0.0214	-0.0642

75% with survival kit

Pitch Angle	Yaw Angle	Drag Force Area	Side Force Force Area	Lift Force Area	Rolling Moment Volume	Pitching Moment Volume	Yawing Moment Volume
120°	5	2.398	-0.1099	-2.492	0.2301	2.274	0.2997
	15	2.649	-1.816	-2.514	0.5298	2.376	0.2034
	30	2.266	-3.303	-2.323	1.295	2.253	-0.1712
	45	1.788	-4.448	-1.900	2.531	1.878	-0.0161
	60	0.7367	-5.005	-1.327	2.874	1.027	0.0268
	75	0.1054	-5.209	-0.5814	1.654	0.1498	0.0642
	90	-0.3416	-5.301	-0.2970	0.4281	-0.0214	-0.0642
150°	5	4.577	-0.6159	-1.678	0.7064	2.906	0.2141
	15	4.565	-2.509	-1.579	0.1605	2.349	0.0268
	30	3.886	-4.050	-1.824	0.7171	2.183	-0.1445
	45	3.197	-4.987	-1.656	1.429	1.691	-0.0749
	60	2.045	-5.752	-1.039	2.087	0.8134	0.0962
	75	0.9938	-5.312	-0.7195	-0.9151	-0.4388	0.7064
	90	-0.3416	-5.301	-0.2970	0.3918	-0.0214	-0.0642
180°	5	6.086	-0.2162	-0.0445	-0.4121	1.332	0.2729
	15	5.629	-1.855	-0.3125	0.000	1.065	0.0696
	30	5.022	-3.919	-0.5750	-0.2729	0.8830	0.0107
	45	4.018	-5.119	-0.5968	-0.2194	0.5726	0.0910
	60	2.749	-5.470	-0.5214	0.0054	-0.2622	0.1498
	75	1.394	-5.614	-0.3188	-0.0375	-0.2997	0.0054
	90	-0.3416	-5.301	-0.2970	0.4228	-0.0214	-0.0642
210°	5	5.100	-0.1308	1.813	-0.0428	-0.5565	0.00
	15	5.054	-1.989	1.395	-0.4495	-0.6422	-0.1284
	30	5.161	-3.598	1.051	-0.6047	-0.8776	-0.1391
	45	4.013	-4.768	0.4260	-0.4228	-0.6368	-0.1926
	60	2.673	-5.475	0.4787	-0.2408	-0.9365	-0.1017
	75	1.531	-5.562	0.5995	0.6796	-0.5351	0.00
	90	-0.3416	-5.301	-0.2970	0.4228	-0.0214	-0.0642

Pitch Angle	Yaw Angle	Drag Force Area	Side Force Force Area	Lift Force Area	Rolling Moment Volume	Pitching Moment Volume	Yawing Moment Volume
240°	5	2.446	0.0055	1.526	-0.4495	-2.360	-0.0535
	15	3.207	-0.7240	1.589	-1.654	-2.221	0.4709
	30	2.169	-3.262	1.243	-1.343	-1.440	-0.0161
	45	1.511	-4.679	0.9039	-1.536	-1.033	0.0428
	60	0.9584	-5.332	0.4388	-1.418	-0.8081	-0.1445
	75	0.3234	-5.336	-0.0890	-0.4602	-0.2890	-0.0054
	90	-0.3416	-5.301	-0.2970	0.4228	-0.0214	-0.0642
270°	5	0.0536	-0.2362	2.434	-0.1124	-0.6690	-0.0535
	15	0.0999	-1.100	2.228	-0.6582	-0.5405	0.0214
	30	-0.1117	-3.003	1.820	-1.434	-0.3104	-0.0856
	45	-0.0908	-4.813	1.156	-1.429	-0.4335	-0.3319
	60	-0.0609	-5.357	0.2762	-1.151	-0.2355	-0.3264
	75	-0.3334	-5.832	0.1535	-0.5191	0.0642	-0.1659
	90	-0.3416	-5.301	-0.2970	0.4281	-0.0214	-0.0642
300°	5	-3.043	-0.1490	1.722	0.1712	1.777	0.0696
	15	-3.128	-1.607	1.754	-0.0161	1.445	0.0
	30	-2.836	-3.907	1.337	-0.5298	0.9900	-0.3799
	45	-2.251	-5.344	0.6213	-0.8081	0.6689	-0.5779
	60	-1.300	-5.870	0.0218	0.9044	0.3318	-0.4174
	75	-0.3352	-5.985	-0.5550	0.1712	0.2462	-0.2943
	90	-0.3416	-5.301	-0.2970	0.4014	-0.0214	-0.0642
330°	5	-5.822	-0.0927	0.6931	0.7331	1.327	-0.1926
	15	-5.783	-1.058	0.5896	0.8348	1.290	-0.0214
	30	-5.234	-3.464	0.2480	0.7117	0.9847	-0.2034
	45	-4.399	-4.971	-0.2271	0.3157	0.7385	-0.6208
	60	-2.685	-5.715	-0.5459	-0.1284	0.3746	-0.5833
	75	-1.850	-5.531	-0.5641	-0.3692	0.4442	-0.1605
	90	-0.3416	-5.301	-0.2970	0.1605	-0.0214	-0.0642

TABLE II-2

FORCE AREAS AND MOMENT VOLUMES (BODY AXIS)
FOR A FULLY EQUIPPED (75) PERCENTILE DUMMY
WITHOUT SURVIVAL KIT

Pitch Angle	Yaw Angle	Drag Force Area	Side Force Area	Lift Force Area	Rolling Moment Volume	Pitching Moment Volume	Yawing Moment Volume
0°	5	-6.668	-0.5005	0.1254	1.134	-2.162	-0.2997
	15	-6.175	-1.202	0.0427	1.139	-2.173	0.0
	30	-6.019	-2.425	0.0	2.376	-1.654	-0.1445
	45	-4.697	-3.499	-0.5387	1.814	-0.7760	-0.1552
	60	-3.419	-4.055	-0.6141	1.242	-0.2462	-0.3211
	75	-1.792	-3.843	-0.6795	0.6796	-0.2836	-0.2890
	90	0.0427	-4.182	-0.2244	1.279	-0.0428	-0.2729
50°	5	-3.668	-0.2870	-1.700	1.616	-3.050	-0.0910
	15	-3.509	-0.9702	-1.758	2.895	-2.692	-0.1498
	30	-3.248	-2.206	-1.434	2.927	-1.627	-0.3639
	45	-3.059	-2.902	-1.198	4.313	-1.611	-0.0749
	60	-2.530	-3.642	-0.8721	3.580	-0.6475	-0.1819
	75	-1.225	-3.806	-0.6577	2.553	-0.9579	-0.2408
	90	0.0427	-4.182	-0.2244	1.279	-0.4281	-0.2729
90°	5	0.0109	-0.2507	-1.620	0.2087	0.5940	0.0375
	15	0.0327	-0.7458	-1.500	3.805	0.5191	0.0268
	30	0.0654	-1.839	-1.740	1.279	0.2676	-0.0749
	45	0.0177	-3.010	-1.509	2.606	0.4602	-0.3585
	60	-0.0636	-3.506	-0.3052	3.195	0.3157	-0.2943
	75	-0.3842	-3.936	-0.8766	2.531	0.1231	-0.2034
	90	0.0427	-4.182	-0.2244	1.279	0.0428	-0.2729

75% without survival kit

TABLE II-3

FORCE AREAS AND MOMENT VOLUMES (BODY AXIS)
FOR A FULLY EQUIPPED (5) PERCENTILE DUMMY
PLUS SURVIVAL KIT

Pitch Angle	Yaw Angle	Drag Force Area	Side Force Area	Lift Force Area	Rolling Moment Volume	Pitching Moment Volume	Yawing Moment Volume
0°	5	-5.276	0.4176	-0.1718	0.2070	0.7265	-0.1380
	15	-4.962	-0.1128	-0.1322	0.6940	0.5154	-0.1259
	30	-4.556	-3.196	-0.2801	1.392	0.4748	-0.4870
	45	-3.738	-3.196	-0.4482	1.104	0.4343	-1.023
	60	-2.254	-4.889	-0.4475	0.7670	0.1015	-1.380
	75	-0.5446	-5.721	-0.4684	0.0852	-0.0893	-1.043
	90	-0.6708	-5.120	-0.3152	-0.1015	-0.2638	-0.4992
30°	5	-4.613	0.2039	-0.7784	0.4911	-1.181	0.0325
	15	-4.618	-1.052	-0.7552	1.615	-0.4627	-0.1055
	30	-4.153	-3.034	-0.6857	2.029	0.0731	-0.5804
	45	-3.093	-4.610	-0.6686	1.745	-0.0690	-0.9821
	60	-1.873	-5.082	-0.8904	1.546	-0.0933	-1.396
	75	-0.7179	-5.101	-0.5535	0.7021	-0.1339	-0.9416
	90	-0.6708	-5.120	-0.3152	-0.0974	-0.2638	-0.4992
60°	5	-2.371	-0.0710	-1.906	0.0284	-0.2679	0.0244
	15	-2.423	-1.270	-1.950	0.6981	0.0690	0.0406
	30	-2.370	-2.677	-1.660	1.510	0.3977	-0.4586
	45	-1.846	-4.108	-1.188	1.607	0.1177	-0.6778
	60	-1.160	-4.755	-0.5983	1.672	-0.2354	-0.5357
	75	-0.9225	-4.891	-0.4519	1.376	-0.1705	-0.6007
	90	-0.6708	-5.120	-0.3152	-0.0974	-0.2638	-0.4992
90°	5	0.1427	-0.1718	-2.071	-0.0649	0.6047	-0.1218
	15	0.4609	-1.262	-2.080	0.2841	0.4830	-0.1015
	30	0.6566	-2.275	-1.917	0.8279	0.3328	-0.1583
	45	-0.1487	-3.359	-1.747	1.895	0.6859	-0.6331
	60	-0.3391	-4.124	-1.324	2.192	0.2354	-0.6291
	75	-0.3989	-4.603	-0.5490	1.644	-0.0365	-0.3287
	90	-0.6708	-5.120	-0.3152	-0.0974	-0.2638	-0.4992

5% with survival kit

Pitch Angle	Yaw Angle	Drag Force Area	Side Force Area	Lift Force Area	Rolling Moment Volume	Pitching Moment Volume	Yawing Moment Volume
120°	5	1.972	0.0456	-2.124	0.4545	2.151	-0.0122
	15	2.594	-1.082	-1.966	0.3369	1.899	-0.0162
	30	1.930	-2.761	-2.089	0.5885	2.731	-0.3693
	45	1.590	-4.077	-1.677	1.940	1.429	-0.3369
	60	0.6716	-4.904	-1.277	2.407	1.035	-0.4383
	75	-0.0261	-4.696	-0.6320	1.664	0.2273	-0.4018
	90	-0.6708	-5.120	-0.3152	-0.1015	-0.2638	-0.4992
150°	5	3.647	-0.4870	-1.181	0.0974	2.348	-0.2313
	15	3.771	-1.809	-1.252	0.1502	2.265	-0.4545
	30	3.666	-3.487	-1.137	0.9091	2.090	-0.4221
	45	2.786	-4.581	-1.038	1.262	1.757	-0.2882
	60	1.433	-5.135	-0.6656	1.692	1.222	-0.2476
	75	0.3854	-5.109	-0.3481	1.489	0.3937	-0.3125
	90	-0.6708	-5.120	-0.3152	-0.1015	-0.2638	-0.4992
180°	5	4.380	0.1808	0.1165	-0.0487	0.6291	0.1015
	15	4.486	-1.598	0.1427	-0.0487	0.6534	-0.0406
	30	4.235	-3.781	0.0747	0.2841	0.4748	-0.2841
	45	3.350	-5.036	0.0247	0.7224	0.4627	-0.1461
	60	1.937	-5.617	-0.2405	-0.6128	-0.6128	-0.3896
	75	0.4952	-5.343	-0.4557	0.1177	-0.2557	-0.5317
	90	-0.6708	-5.120	-0.3152	-0.0974	-0.2638	-0.4992
210°	5	3.922	-0.2995	0.5946	0.4992	-2.346	0.0933
	15	3.860	-2.125	0.5341	-0.7588	-1.912	-0.2922
	30	3.782	-3.455	0.4318	-0.5073	-1.907	-0.0072
	45	3.143	-4.612	0.3130	-0.0186	-0.8847	-0.4099
	60	1.705	-5.263	0.0530	-0.5641	-0.8239	-0.3571
	75	0.2682	-5.479	-0.1845	-0.2597	-0.3450	-0.3653
	90	-0.6708	-5.120	-0.3152	-0.0974	-0.2638	-0.4992

Pitch Angle	Yaw Angle	Drag Force Area	Side Force Area	Lift Force Area	Rolling Moment Volume	Pitching Moment Volume	Yawing Moment Volume
240°	5	2.712	-0.5976	0.9479	0.0122	-2.524	+0.8279
	15	1.982	-1.526	1.399	-0.6615	-2.4960	-0.2110
	30	1.836	-3.490	1.064	-1.364	-2.301	-0.3247
	45	1.187	-4.629	0.7291	-1.579	-1.765	-0.5479
	60	0.3451	-5.505	0.1770	-1.489	-0.9253	-0.7549
	75	-0.4743	-5.791	-0.3249	-0.8766	-0.3571	-0.6940
	90	-0.6708	-5.120	-0.3152	-0.0974	-0.2638	-0.4992
270°	5	0.2823	-0.6290	2.138	0.1380	-0.9091	-0.1664
	15	0.2263	-1.567	1.963	-0.2679	-0.7508	-0.3815
	30	0.0844	-3.243	1.494	-1.104	-0.3977	-0.4911
	45	-0.1098	-4.896	0.9173	-1.660	-0.5235	-0.8523
	60	-0.2868	-6.000	0.1434	-1.327	-0.2679	-0.9375
	75	-0.3167	-5.844	-0.4616	-0.7468	-0.1948	-0.9578
	90	-0.6708	-5.120	-0.3160	-0.0974	-0.2638	-0.4992
300°	5	-2.313	-0.6140	1.495	0.0162	1.242	-0.0203
	15	-2.487	-1.972	1.407	-0.1461	1.242	-0.2719
	30	-2.665	-3.679	1.123	-0.5357	1.230	-0.7102
	45	-2.183	-5.245	0.5476	-0.7549	0.9619	-0.9456
	60	-1.472	-5.856	-0.0620	-1.222	0.7183	-0.8320
	75	-0.5550	-5.907	-0.7380	-0.8726	0.1542	-0.8117
	90	-0.6708	-5.120	-0.3152	-0.0974	-0.2638	-0.4992
330°	5	-4.619	-0.0598	0.0926	0.2476	1.778	-0.1380
	15	-4.598	-1.436	0.8164	0.4870	1.656	-0.3084
	30	-4.474	-3.379	0.4572	0.6453	1.441	-0.7508
	45	-3.890	-4.906	0.0657	0.3287	1.031	-1.104
	60	-2.452	-5.665	-0.2465	-0.0893	0.7508	-0.8280
	75	-0.7171	-5.667	-0.5378	-0.5154	0.4424	-1.015
	90	-0.6708	-5.12	-0.3152	-0.0974	-0.2638	-0.4992

TABLE Ii-4

FORCE AREA AND MOMENT VOLUME (BODY AXIS)
FOR A FULLY EQUIPPED 5 PERCENTILE DUMMY
WITHOUT SURVIVAL KIT

Pitch Angle	Yaw Angle	Drag Force Area	Side Force Area	Lift Force Area	Rolling Moment Volume	Pitching Moment Volume	Yawing Moment Volume
0°	5	-5.370	1.554	-0.2667	0.5601	-0.0041	0.3856
	15	-5.157	-0.9696	-0.0710	0.8726	-0.0974	0.3571
	30	-4.712	-2.288	0.2779	1.636	-0.4140	0.1502
	45	-3.744	-3.457	-0.1942	1.814	-0.2719	-0.5804
	60	-2.557	-4.108	-0.2951	1.567	-0.0731	-0.8157
	75	-1.292	-3.899	-0.3757	0.8320	-0.2638	-0.6778
	90	-0.5393	-3.712	-0.4452	0.6575	-0.4140	-0.4383
50°	5	-3.077	0.0493	-1.401	-0.1299	-0.8969	0.0162
	15	-3.237	-0.6290	-1.278	-1.043	-0.8401	-0.1339
	30	-2.886	-2.159	-1.181	1.838	-0.3084	-0.5195
	45	-2.192	-3.159	-1.147	1.907	-0.4464	-0.6981
	60	-1.344	-3.584	-0.8770	1.834	-0.7062	-0.6737
	75	-1.079	-3.468	-0.7350	1.550	-0.2273	-0.4830
	90	-0.5393	-3.712	-0.4452	0.6575	-0.4140	-0.4383
90°	5	-0.3817	-0.2428	-1.797	-0.0041	0.7630	-0.1055
	15	0.5834	-0.6529	-1.926	0.2232	0.4789	-0.0609
	30	0.5752	-1.639	-2.125	1.213	0.2679	-0.0893
	45	0.4317	-2.830	-1.807	2.102	0.3815	-0.4058
	60	0.2211	-3.160	-1.404	2.289	0.1664	-0.5114
	75	-0.3249	-3.566	-0.8097	2.021	-0.1705	-0.6088
	90	-0.5393	-3.712	-0.4452	0.6575	-0.4140	-0.4383

5% without survival kit

TABLE II-5

$\sqrt{WL}$ REDUCED COEFFICIENTS FOR A FULLY EQUIPPED 75 PERCENTILE DUMMY PLUS SURVIVAL KIT

Pitch Angle	Yaw Angle	$C_{D_{\sqrt{WL}}}$	$C_{Y_{\sqrt{WL}}}$	$C_{L_{\sqrt{WL}}}$	$C_{\ell_{\sqrt{WL}}}$	$C_{M_{\sqrt{WL}}}$	$C_{N_{\sqrt{WL}}}$
0°	5	-0.2064	-0.0126	0.0133	0.0052	-0.0066	-0.0019
	10	-0.2002	-0.0239	0.0080	0.0074	-0.0060	-0.0009
	20	-0.1883	-0.527	0.0034	0.0090	-0.0047	0.0001
	30	-0.1725	-0.1025	-0.0035	0.0088	-0.0037	-0.0003
	40	-0.1477	-0.1365	-0.0143	0.0087	-0.0017	-0.0008
	50	-0.1240	-0.1585	-0.2225	0.0068	-0.0008	-0.0025
	60	-0.0896	-0.1742	-0.0235	0.0045	-0.0013	-0.0033
	70	-0.0471	-0.1707	-0.0236	0.0015	0.0008	-0.0034
	80	-0.0008	-0.1670	-0.0179	0.0023	0.0001	-0.0022
	90	-0.0106	-0.1643	0.0092	0.0023		-0.00033
30°	5	-0.1700	-0.0233	-0.0188	0.0094	-0.0113	0.0005
	15	-0.1674	-0.0397	-0.0189	0.0117	-0.0114	0.0004
	30	-0.1428	-0.0927	-0.0278	0.0159	-0.0067	0.0001
	45	-0.1085	-0.1422	-0.0242	0.0153	-0.0053	-0.0013
	60	-0.0739	-0.1614	-0.0322	0.0099	-0.0022	-0.0033
	75	-0.0276	-0.1580	-0.0199	0.0045	0.0013	-0.0020
	90	-0.0106	-0.1643	-0.0092	0.0022	-0.0001	-0.00033
60°	5	-0.0827	-0.0043	-0.0657	0.0039	-0.0654	-0.0010
	15	-0.0854	-0.0390	-0.0616	0.0064	-0.0021	-0.0015
	30	-0.0792	-0.0838	-0.0544	0.0095	-0.0034	-0.0010
	45	-0.0706	-0.1208	-0.0466	0.0124	-0.0026	-0.0016
	60	-0.0337	-0.1585	-0.0352	0.0140	-0.0005	0.0017
	75	-0.0206	-0.1579	-0.0213	0.0095	0.0003	0.0013
	90	-0.0106	-0.1643	-0.0092	0.0022	-0.0001	0.00033
90°	5	0.0042	-0.0083	-0.0684	0.0011	0.0024	0.0007
	15	0.0066	-0.0447	-0.0706	0.0032	0.0022	-0.0004
	30	0.0233	-0.0756	-0.0701	0.0059	0.0011	-0.0001
	45	0.0109	-0.1139	-0.0629	0.0131	0.0019	-0.0012
	60	0.0104	-0.1462	-0.0391	0.0155	0.0012	-0.0014
	75	-0.0106	-0.1559	-0.0234	0.0106	0.0001	-0.0002
	90	-0.0106	-0.1643	-0.0092	0.0022	-0.0001	-0.00033

75% with survival kit

Pitch Angle	Yaw Angle	$C_{D_{\sqrt{WL}}}$	$C_{Y_{\sqrt{WL}}}$	$C_{L_{\sqrt{WL}}}$	$C_{\ell_{\sqrt{WL}}}$	$C_{M_{\sqrt{WL}}}$	$C_{N_{\sqrt{WL}}}$
120°	5	0.0743	-0.0034	-0.0773	0.0012	0.0120	0.0016
	15	0.0821	-0.0563	-0.0779	0.0028	0.0125	0.0011
	30	0.0703	-0.1024	-0.0720	0.0068	0.0011	-0.0009
	45	0.0554	-0.1379	-0.0589	0.0133	0.0099	-0.0001
	60	0.0228	-0.1552	-0.0411	0.0151	0.0054	0.0001
	75	0.0033	-0.1615	-0.0180	0.0087	0.0008	0.0003
	90	-0.0106	-0.1643	-0.0092	0.0022	-0.0001	-0.00033
150°	5	0.1419	-0.0191	-0.0520	0.0037	0.0153	0.0011
	15	0.1415	-0.0779	-0.0490	0.0008	0.0124	0.0001
	30	0.1205	-0.1256	-0.0566	0.0038	0.0115	-0.0008
	45	0.0991	-0.1546	-0.0513	0.0075	0.0089	-0.0004
	60	0.0634	-0.1783	-0.0322	0.0110	0.0043	0.0005
	75	0.0308	-0.1647	-0.0223	-0.0048	-0.0023	0.0037
	90	-0.0106	-0.1643	-0.0092	0.0021	-0.0001	-0.0003
180°	5	0.1887	-0.0067	-1.380	-0.0022	0.0070	0.0014
	15	0.1745	-0.0575	-0.0097	0.0	0.0056	0.0004
	30	0.1557	-0.1215	-0.0178	-0.0014	0.0046	0.0001
	45	0.1246	-0.1587	-0.0185	-0.0012	0.0030	0.0005
	60	0.0852	-0.1696	-0.0162	0.0	-0.0014	0.0008
	75	0.0432	-0.1740	-0.0099	-0.0002	-0.0016	0.0
	90	-0.0106	-0.1643	-0.0092	0.0022	-0.0001	0.00033
210°	5	0.1581	-0.0041	0.0562	-0.0002	-0.0029	0.0
	15	0.1567	-0.0617	0.0432	-0.0024	-0.0034	-0.0007
	30	0.1600	-0.1116	0.0326	-0.0032	-0.0046	-0.0007
	45	0.1244	-0.1478	0.0132	-0.0022	-0.0034	-0.0010
	60	0.0829	-0.1697	0.0148	-0.0013	-0.0049	-0.0005
	75	0.0475	-0.1724	0.0186	0.0036	-0.0028	0.0
	90	-0.0106	-0.1643	-0.0092	-0.0022	-0.0001	-0.00033

Pitch Angle	Yaw Angle	$C_{D_{\sqrt{WL}}}$	$C_{Y_{\sqrt{WL}}}$	$C_{L_{\sqrt{WL}}}$	$C_{\ell_{\sqrt{WL}}}$	$C_{M_{\sqrt{WL}}}$	$C_{N_{\sqrt{WL}}}$
240°	5	0.0758	-0.0002	0.0473	-0.0024	-0.0124	-0.0003
	15	0.0994	-0.0224	0.0493	-0.0087	-0.0117	0.0025
	30	0.0672	-0.1011	0.0385	-0.0002	-0.0076	-0.0001
	45	0.0468	-0.1451	0.0280	-0.0081	-0.0054	0.0002
	60	0.0297	-0.1653	0.0136	-0.0075	-0.0043	-0.0008
	75	0.0100	-0.1654	-0.0028	-0.0024	-0.0015	0.0
	90	-0.0106	-0.1643	-0.0092	0.0022	-0.0001	0.0003
270°	5	0.0017	-0.0073	0.0755	-0.0006	-0.0035	-0.0003
	15	0.0031	-0.0341	0.0691	-0.0035	-0.0028	0.0001
	30	-0.0035	-0.0931	0.0564	-0.0075	-0.0016	-0.0005
	45	-0.0028	-0.1492	0.0358	-0.0075	-0.0023	-0.0017
	60	-0.0019	-0.1661	0.0086	-0.0061	-0.0012	-0.0017
	75	-0.0103	-0.1808	0.0048	-0.0027	0.0003	-0.00087
	90	-0.0106	-0.1643	-0.0092	0.0023	-0.0001	-0.00033
300°	5	-0.0943	-0.0046	0.0533	0.0009	0.0094	0.00037
	15	-0.0970	-0.0498	0.0544	-0.0001	0.0076	0.0
	30	-0.0879	-0.1211	0.0415	-0.0028	0.0052	-0.00200
	45	-0.0698	-0.1657	0.0193	-0.0043	0.0035	-0.00304
	60	-0.0403	-0.1820	0.0007	0.0048	0.0017	-0.00220
	75	-0.0104	-0.1856	-0.0172	0.0009	0.0013	-0.00155
	90	-0.0106	-0.1643	-0.0092	0.0021	-0.0001	-0.00033
330°	5	-0.1805	-0.0029	0.0215	0.0039	0.0070	-0.00101
	15	-0.1793	-0.0328	0.0183	0.0044	0.0068	-0.00011
	30	-0.1623	-0.1074	0.0077	0.0037	0.0052	-0.00107
	45	-0.1364	-0.1541	-0.0070	0.0017	0.0039	-0.00327
	60	-0.0832	-0.1772	-0.0169	-0.0007	0.0020	-0.00307
	75	-0.0574	-0.1715	-0.0175	-0.0019	0.0023	-0.00084
	90	-0.0106	-0.1643	-0.0092	0.0008	-0.0001	-0.00033

TABLE II-6

$\sqrt{WL}$ REDUCED COEFFICIENTS FOR A FULLY
EQUIPPED 75 PERCENTILE DUMMY
WITHOUT SURVIVAL KIT

Pitch Angle	Yaw Angle	$C_{D_{\sqrt{WL}}}$	$C_{Y_{\sqrt{WL}}}$	$C_{L_{\sqrt{WL}}}$	$C_{\ell_{\sqrt{WL}}}$	$C_{M_{\sqrt{WL}}}$	$C_{N_{\sqrt{WL}}}$
0°	5	-0.2067	-0.0155	0.0039	0.0059	-0.0113	-0.0015
	15	-0.1914	-0.0373	0.0013	0.0059	-0.0114	0.0
	30	-0.1866	-0.0752	0.0	0.0125	-0.0087	-0.0008
	45	-0.1456	-0.1085	-0.0167	0.0095	-0.0041	-0.0009
	60	-0.1060	-0.1257	-0.0190	0.0035	-0.0013	-0.0011
	75	-0.0556	-0.1191	-0.0211	0.0067	-0.0002	-0.0014
	90	0.0013	-0.1297	-0.0070			
30°	5	-0.1137	-0.0089	-0.0527	0.0085	-0.0161	-0.0005
	15	-0.1028	-0.0301	-0.0545	0.0152	-0.0142	-0.0008
	30	-0.1007	-0.0684	-0.0445	0.0154	-0.0086	-0.0019
	45	-0.0948	-0.0900	-0.0371	0.0227	-0.0085	-0.0005
	60	-0.0784	-0.1129	-0.0270	0.0188	-0.0034	-0.0010
	75	-0.0380	-0.1180	-0.0204	0.0134	-0.0050	-0.0011
	90	0.0013	-0.1297	-0.0070	0.0067	-0.0002	-0.0014
90°	5	0.0003	-0.0078	-0.0502	0.0011	0.0031	0.0001
	15	0.0010	-0.0231	-0.0465	0.0200	0.0027	0.0009
	30	0.0020	-0.0570	-0.0539	0.0067	0.0014	-0.0004
	45	0.0005	-0.0933	-0.0468	0.0137	0.0024	-0.0019
	60	-0.0026	-0.1087	-0.0095	0.0168	0.0017	-0.0016
	75	-0.0119	-0.1220	-0.0272	0.0133	0.0006	-0.0011
	90	0.0013	-0.1297	-0.0070	0.0067	-0.0002	-0.0014

75% without survival kit

TABLE II-7

$\sqrt{WL}$ REDUCED COEFFICIENTS FOR A FULLY
EQUIPPED 5 PERCENTILE DUMMY
PLUS SURVIVAL KIT

Pitch Angle	Yaw Angle	$C_{D_{\sqrt{WL}}}$	$C_{Y_{\sqrt{WL}}}$	$C_{L_{\sqrt{WL}}}$	$C_{\ell_{\sqrt{WL}}}$	$C_{M_{\sqrt{WL}}}$	$C_{N_{\sqrt{WL}}}$
0°	5	-0.1966	0.0156	-0.0064	0.0014	0.0050	-0.0009
	15	-0.0149	-0.0042	-0.0049	0.0048	0.0035	-0.0009
	30	-0.1698	-0.1191	-0.0104	0.0095	0.0033	-0.0033
	45	-0.1393	-0.1191	-0.0167	0.0076	0.0030	-0.0070
	60	-0.0840	-0.1822	-0.0167	0.0053	0.0007	-0.0095
	75	-0.0203	-0.2132	-0.0175	0.0006	-0.0006	-0.0072
	90	-0.0250	-0.1908	-0.0117	-0.0007	-0.0018	-0.0034
30°	5	-0.1719	0.0076	-0.0290	0.0034	-0.0081	0.0002
	15	-0.1721	-0.0392	-0.0281	0.0111	-0.0032	-0.0007
	30	-0.1548	-0.1131	-0.0255	0.0139	0.0005	-0.0040
	45	-0.1153	-0.1718	-0.0249	0.0120	-0.0005	-0.0067
	60	-0.0698	-0.1894	-0.0332	0.0106	-0.0006	-0.0096
	75	-0.0268	-0.1901	-0.0206	0.0005	-0.0009	-0.0065
	90	-0.0250	-0.1908	-0.0117	-0.0007	-0.0018	-0.0034
60°	5	-0.0884	-0.0026	-0.0710	0.0002	-0.0018	0.0002
	15	-0.0903	-0.0473	-0.0727	0.0048	0.0005	0.0003
	30	-0.0883	-0.0998	-0.0619	0.0104	0.0026	-0.0031
	45	-0.0688	-0.1531	-0.0443	0.0110	0.0008	-0.0046
	60	-0.0432	-0.1772	-0.0223	0.0115	-0.0016	-0.0037
	75	-0.0344	-0.1823	-0.0168	0.0094	-0.0012	-0.0041
	90	-0.0250	-0.1908	-0.0117	-0.0007	-0.0018	-0.0034
90°	5	0.0053	-0.0064	-0.0772	-0.0004	0.0041	-0.0008
	15	0.0172	-0.0470	-0.0775	0.0019	0.0033	-0.0007
	30	0.0245	-0.0848	-0.0714	0.0057	0.0023	-0.0011
	45	-0.0055	-0.1252	-0.0651	0.0130	0.0047	-0.0043
	60	-0.0126	-0.1537	-0.0493	0.0150	0.0016	-0.0043
	75	-0.0149	-0.1716	-0.0205	0.0113	-0.0003	-0.0023
	90	-0.0250	-0.1908	-0.0117	-0.0007	-0.0018	-0.0034

5% with survival kit

Pitch Angle	Yaw Angle	$C_{D_{\sqrt{WL}}}$	$C_{Y_{\sqrt{WL}}}$	$C_{L_{\sqrt{WL}}}$	$C_{\ell_{\sqrt{WL}}}$	$C_{M_{\sqrt{WL}}}$	$C_{N_{\sqrt{WL}}}$
120°	5	0.0735	0.0017	-0.0792	0.0031	0.0146	-0.0001
	15	0.0967	-0.0403	-0.0733	0.0023	0.0130	-0.0001
	30	0.0719	-0.1029	-0.0779	0.0040	0.0187	-0.0025
	45	0.0593	-0.1520	-0.0625	0.0133	0.0098	-0.0023
	60	0.0250	-0.1828	-0.0476	0.0165	0.0071	-0.0020
	75	-0.0010	-0.1750	-0.0236	0.0114	0.0016	-0.0028
	90	-0.0250	-0.1908	-0.0117	-0.0007	-0.0018	-0.0034
150°	5	0.1360	-0.0182	-0.0440	0.0007	0.0016	-0.0016
	15	0.1405	-0.0674	-0.0467	0.0010	0.0155	-0.003
	30	0.1366	-0.1230	-0.0424	0.0062	0.0143	-0.0029
	45	0.1038	-0.1707	-0.0387	0.0087	0.0121	-0.0026
	60	0.0534	-0.1914	-0.0248	0.0116	0.0084	-0.0017
	75	0.0144	-0.1904	-0.0130	0.0102	0.0027	-0.0021
	90	-0.0250	-0.1908	-0.0117	-0.0007	-0.0018	-0.0034
180°	5	0.0163	0.0067	0 0043	-0.0003	0.0043	0.0007
	15	0.1672	-0.0592	0.0053	-0.0003	0.0045	-0.0003
	30	0.1578	-0.1409	0.0028	0.0019	0.0033	-0.0019
	45	0.1249	-0.1877	0.0009	0.0050	0.0032	-0.0010
	60	0.0722	-0.2094	-0.0090	-0.0042	-0.0042	-0.0027
	75	0.0185	-0.1991	-0.0170	0.0008	-0.0018	-0.0036
	90	-0.0250	-0.1908	-0.0117	-0.0007	-0.0018	-0.0034
210°	5	0.1462	-0.0112	0.2216	-0.0034	-0.0161	0.0006
	15	0.1439	-0.0792	0.0199	-0.0052	-0.0131	-0.0020
	30	0.1410	-0.1288	0.0161	-0.0035	-0.0131	0.0
	45	0.1171	-0.1719	0.0117	-0.0001	-0.0061	-0.0028
	60	0.0635	-0.1962	0.0020	-0.0039	-0.0057	-0.0024
	75	0.0100	-0.2042	-0.0069	-0.0018	-0.0024	-0.0025
	90	-0.0250	-0.1908	-0.0117	-0.0007	-0.0018	-0.0034

Pitch Angle	Yaw Angle	$C_{D_{\sqrt{WL}}}$	$C_{Y_{\sqrt{WL}}}$	$C_{L_{\sqrt{WL}}}$	$C_{\ell_{\sqrt{WL}}}$	$C_{M_{\sqrt{WL}}}$	$C_{N_{\sqrt{WL}}}$
240°	5	0.1011	-0.0223	0.0353	0.0001	-0.0173	0.0114
	15	0.0739	-0.0569	0.0521	-0.0045	-0.0171	-0.0014
	30	0.0684	-0.1301	0.0397	-0.0094	-0.0158	-0.0022
	45	0.0442	-0.1725	0.0272	-0.0108	-0.0121	-0.0038
	60	0.0129	-0.2052	0.0066	-0.0102	-0.0063	-0.0052
	75	-0.0177	-0.2158	-0.0121	-0.0060	-0.0024	-0.0048
	90	-0.0250	-0.1908	-0.0117	-0.0007	-0.0018	-0.0034
270°	5	0.0105	-0.0234	0.0797	0.0009	-0.0062	-0.0011
	15	0.0084	-0.0584	0.0732	-0.0018	-0.0052	-0.0026
	30	0.0031	-0.1209	0.0557	-0.0076	-0.0027	-0.0034
	45	-0.0041	-0.1825	0.0342	-0.0114	-0.0036	-0.0059
	60	-0.0107	-0.2236	0.0053	-0.0091	-0.0018	-0.0064
	75	-0.0118	-0.2178	-0.0172	-0.0051	-0.0013	-0.0066
	90	-0.0250	-0.1908	-0.0117	-0.0007	-0.0018	-0.0034
300°	5	-0.0862	-0.0229	0.0557	0.0001	0.0085	-0.0001
	15	-0.0927	-0.0735	0.0524	-0.0010	0.0085	-0.0019
	30	-0.0993	-0.1371	0.0419	-0.0037	0.0084	-0.0049
	45	-0.0814	-0.1955	0.0204	-0.0052	0.0066	-0.0065
	60	-0.0549	-0.2183	-0.0023	-0.0084	0.0049	-0.0057
	75	-0.0207	-0.2202	-0.0275	-0.0060	0.0011	-0.0056
	90	-0.0250	-0.1908	-0.0117	-0.0007	-0.0018	-0.0034
330°	5	-0.1722	-0.0022	0.0035	0.0017	0.0122	-0.0009
	15	-0.1714	-0.0535	0.0304	0.0033	0.0114	-0.0021
	30	-0.1668	-0.1259	0.0170	0.0044	0.0099	-0.0052
	45	-0.1450	-0.1829	0.0024	0.0023	0.0071	-0.0076
	60	-0.0914	-0.2111	-0.0092	-0.0006	0.0052	-0.0057
	75	-0.0267	-0.2112	-0.0200	-0.0035	0.0030	-0.0070
	90	-0.0250	-0.1908	-0.0117	-0.0007	-0.0018	-0.0034

TABLE II-8

$\sqrt{WL}$ REDUCED COEFFICIENTS FOR A FULLY EQUIPPED 5 PERCENTILE DUMMY WITHOUT SURVIVAL KIT

Pitch Angle	Yaw Angle	$C_{D_{\sqrt{WL}}}$	$C_{Y_{\sqrt{WL}}}$	$C_{L_{\sqrt{WL}}}$	$C_{\ell_{\sqrt{WL}}}$	$C_{M_{\sqrt{WL}}}$	$C_{N_{\sqrt{WL}}}$
0°	5	-0.2001	0.0058	-0.0099	0.0038	0.0	0.0026
	15	-0.1922	-0.0361	-0.0026	0.0060	-0.0007	0.0024
	30	-0.1756	-0.0853	0.0104	0.0112	-0.0028	0.0010
	45	-0.1395	-0.1288	-0.0072	0.0124	-0.0019	-0.0040
	60	-0.0953	-0.1531	-0.0110	0.0107	-0.0005	-0.0056
	75	-0.0482	-0.1453	-0.0140	0.0057	-0.0018	-0.0046
	90	-0.0201	-0.1384	-0.0166	0.0045	-0.0028	-0.0030
50°	5	-0.1147	0.0018	-0.0522	-0.0009	-0.0062	0.0001
	15	-0.1206	-0.0234	-0.0476	0.0072	-0.0058	-0.0009
	30	-0.1076	-0.0805	-0.0440	0.0126	-0.0021	-0.0036
	45	-0.0817	-0.1177	-0.0427	0.0131	-0.0031	-0.0048
	60	-0.0501	-0.1336	-0.0327	0.0126	-0.0048	-0.0046
	75	-0.0402	-0.1293	-0.0274	0.0106	-0.0016	-0.0033
	90	-0.0201	-0.1384	-0.0166	0.0045	-0.0028	-0.0030
90°	5	-0.0142	-0.0090	-0.0670	0.00	0.0052	-0.0007
	15	0.0217	-0.0243	-0.0681	0.0015	0.0033	-0.0004
	30	0.0214	-0.0611	-0.0792	0.0083	0.0018	-0.0006
	45	0.0161	-0.1055	-0.0673	0.0144	0.0026	-0.0028
	60	0.0082	-0.1178	-0.0523	0.0157	0.0011	-0.0035
	75	-0.0121	-0.1330	-0.0302	0.0139	-0.0011	-0.0042
	90	-0.0201	-0.1384	-0.0166	0.0045	-0.0028	-0.0030

5% without survival kit

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